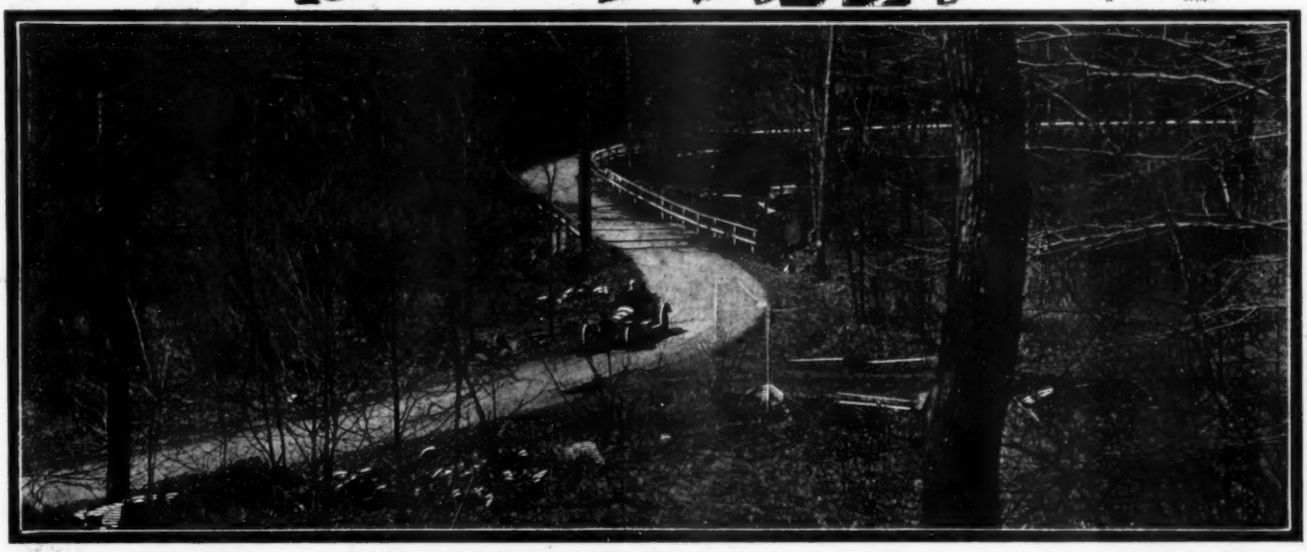
VOL. XVIII NEW YORK—THURSDAY, APRIL 16, 1908—CHICAGO No. 16

THE AUTOMOBILE

Next the Race for the Briarcliff Trophy



WITH the carnival successfully disposed of, the Briarcliff Trophy race, which will be run over a 30-mile course in Westchester county during the forenoon hours of next week Friday, monopolizes the attention of the metropolitan automobile world. Dealers and importers and individuals have given the contest support to the extent of 22 entries, equally divided between the domestic and the foreign product. The American end of the contest will be held up by three Stearns, two Loziers, two Simplexes, a Thomas Flyer, an Allen-Kingston, a Hol-Tan Shawmut, and an Apperson. French importers will be represented by two Renaults and a Panhard. Rival Italian teams will be a Bianchi, a pair of Fiats, and a trio of Isottas. Austria will be in evidence with a Maja and Germany with a Benz.

The committee in charge has been lenient in its interpretation of the rules of the race restricting the cars to stock chassis, deciding that cars with Kaiserpreis equipment are eligible, on the theory that the big annual struggle in Germany is intended to be a race for touring cars, and by accepting other entries on the assurance that at least 10 cars of the competing model had been or would be built.

The normal difficulties of the course, arising from numerous sharp turns, narrow stretches, and an absence of macadam surface for nearly one-third of the way, are likely to be considerably magnified by soft and rough going on the dirt road sections due to early spring mud. These obstacles will, it is believed, come pretty near to placing all of the cars on a fairly even footing and leave the outcome largely dependent on the skill of the pilots. It has been persistently reiterated by its promoters that the contest is intended to be a test of stock chassis under touring conditions rather worse than normal. It looks now as though the conditions alleged to have been aimed at had been secured to an extent a bit beyond the hopes of the management or the expectations of those that made the entries. A fortnight ago there was some talk of the advisability of a postponement to a later date, when a dryer and better prepared course might be expected; but the entrants decided to take all risks, and voted against a postponement. The question of added practice expenses and the original promise of the promoters to furnish the local trade with an event that should stir up spring business a bit earlier than formerly, were also among considerations that influenced the New York tradesmen in their vote against postponement.

Criticisms of the unpreparedness of the course by the entrants and the local press have spurred the committee in charge to greater efforts to eliminate the early spring ruts and mud holes, and not only possible but fair racing conditions are promised by the promoters by the day of the race, and perhaps in time for a little more universal practice with the competing cars than prudence has so far permitted. Much of the preliminary training thus far has been confined to a study of the sharp turns in touring cars. Spring rains have been a delaying factor in this preparation of the course, and difficulties have been added to the work by the general character of the country, which is hilly, and, therefore, subject to miniature streams that seam the surface.

BERNIN------Renault

HILLIARD----Hol-Tan

LYTLE-------Apperson

ROBERTS-----Thomas

VAUGHAN------Stearns

STRANG--------Isotta

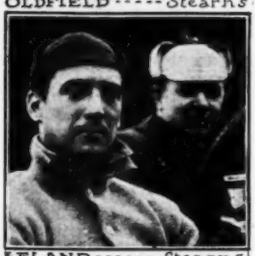
CEDRINO--------Fiat

POOLE---------Isotta

ROBERTSON---Panhard

HARDING--------Isotta

OLDFIELD-----Stearns


LELAND------Stearns

MICHENER----Stearns

MULFORD----Stearns

BERGDOLL-------Benz

Drivers Who Have Won Their Spurs.

The American racing world has been explored for its best drivers, and eighty per cent. of the pilots signed have won fame or are more or less well known as contestants in prominent racing events. The Stearns people have secured a rather formidable trio in Oldfield, Vaughan and Leland. It will be the track champion's first essay at road racing. Vaughan and Leland have both scored successes in track races and hill climbs, but they, too, have not heretofore figured in road events. The Isotta aggregation has picked up a clever trio in Strang, who won the Savannah cup; Poole, who was Tracy's mechanic in his big races, and Harding, who won the 1906 Wilkes-Barre hill climb. Paul Lacroix will pin his faith on Maurice Bernin, who has driven in Vanderbilt contests and at Ormond and won for the Renault 24-hour honors at Morris Park. Herbert Lytle, of Vanderbilt Cup fame, who was a winner at Savannah, will be at the wheel of the Apperson Jackrabbit. Montague Roberts, the Thomas Flyer pilot, has had a lot of varied experiences on the track and road, having driven in Vanderbilt Cup elimination trials, won the 24-hour Brighton Beach race, and piloted the New York-Paris Thomas part way across the continent. Emanuel Cedrino, a Vanderbilt Cup and track driver, will man the Fiat, and Arthur Campbell, another contender in the Long Island classic, an Allen-Kingston. Michener and Mulford, the Lozier pilots, were at Savannah, and have been inveterate contestants in the big 24-hour track races. Bergdoll, who won the stock car race at Ormond in record time, will drive his Benz again, unless he decides to surrender the wheel to Parker, his racing expert. W. M. Hilliard, to whom the Hol-Tan Company has entrusted the Shawmut, is a Boston racing expert, who has driven at Ormond, up Mt. Washington, and on various tracks.

Incidents of the Training Have Been Lively.

Racing camps have been pitched at convenient locations around the course. The Lozier, Simplex and Stearns are at Briarcliff; the Maja and Isotta at White Plains; the Thomas and Hol-Tan at East View; the Panhard at Valhalla; the Apperson and Fiat between Hawthorne and Briarcliff.

The candidates have for the most part prudently confined their preliminary practice to a study of the difficulties of the route in touring cars. So bad has been the roadway in places that drivers have actually taken to the ditches to avoid the bad spots.

The early crop of practice disasters has been already quite large. Two were reported to have occurred on Sunday morning. Joseph Seymour, a member of the Simplex team, in rounding a sharp turn near Mt. Kisco, ran into a stone wall, throwing out Seymour and his three companions, R. C. Watson, another Sim-

PARKER---------Fiat

WATSON--------Simplex

MURPHY---------Maja

CAMPBELL-Allan-Kingston

SEYMOUR-------Simplex

Between Wampus Lake and Armonk, One of the Most Picturesque Stretches on the Varied, Tortuous Yet Picturesque Course.

plex driver, and Phil Fehr and Thomas Corter, mechanics. The front wheels of the car were badly bent.

The same morning David Murphy was putting through its best paces the Maja, entered by Major J. J. Brown, of White Plains, when the car struck a small stone, skidded and was overturned in the ditch. Murphy's arm was badly cut, and the steering rod of the car was broken and its frame bent.

On Saturday, Montague Roberts, while taking a sharp turn in a Thomas Flyer runabout, skidded off the road so sharply that he and his mechanic were thrown out.

The Hol-Tan Company has made an eleventh-hour substitution of a Shawmut for its Hol-Tan. W. M. Hilliard, who will pilot it in the race, drove it down from Boston on Sunday, making the 250 miles over bad roads in 10 hours. The Shawmut is quite a well-known Boston product, having been manufactured by a company at whose head is Elliot C. Lee, former president of the A. A. A. and a prominent banker. Negotiations are in progress for the Hol-Tan Company to add the Shawmut locally to its Hol-Tan line. The Shawmut will be one of the smallest and lowest powered cars in the race, being rated roughly at 40 horsepower, with a piston area of a fraction over 72 cubic inches. Hilliard at once took up his quarters on the course.

The present bad condition of the course, or its probable state on the day of the race, after all promised repairs have been made, not being taken into consideration, the route normally presents great obstacles to high speed. The curves are practically continuous and sharp turns frequent. In fact, eighteen bad turns to the circuit are admitted by the management. It will be remembered that the sinuosities of the Savannah course, even with the sharp curves well banked, slowed down cars that had shown a 70-mile an hour ability on the straightaways to an average of 50 miles an hour in the race. The Georgia circuit was a race course as compared with the Westchester route. Accordingly, the possible and probable average rate per hour likely to be attained by the Briarcliff candidates becomes a matter for the committee's serious consideration, in view of the fact that the road will be closed against the racing cars at 1 o'clock in the afternoon. The impression prevails that the winner of the Westchester race will be that driver who sets a steady and safe pace and pursues the even tenor of the way without any reference to the perhaps more brash efforts of his competitors.

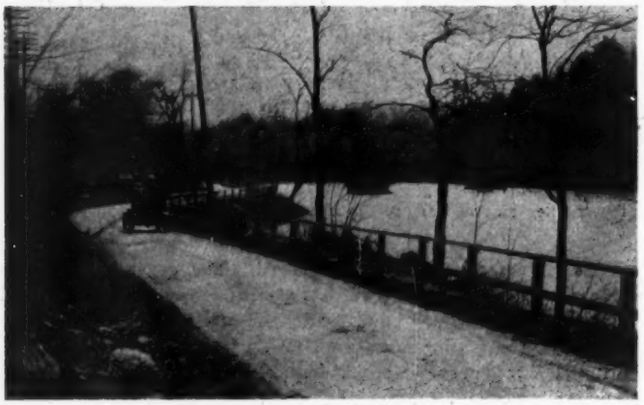
Start of Race Will Be at 4:45 A.M.

With the start set for 4:45 o'clock in the morning, there will be 8 1-4 hours available for the 300-mile run at present scheduled. This will require an average of 36 1-3 miles an hour to complete the race in time. The fastest single laps in practice so far reported were done in about 50 minutes, an average of 36 miles an hour. There is every hope, though, that by the day of the race the course will be so far improved as to admit of a cut of

DETAILS OF THE CARS THAT WILL COMPETE FOR BRIARCLIFF HONORS.

No.	CAR	Entrant	Driver	Cyls.	Piston Displacement	H.P.	Ignition	Clutch	Drive	Tires
1.	Hol-Tan-Shawmut	Hol-Tan Co	W. M. Hilliard	4	72.38	35	Bosch H.T.	Disc.	Shaft	Continental
2.	Renault	Paul Lacroix	M. G. Bernin	4	86.59035	35–45	Bosch H. T.	Cone	Shaft	Michelin
3.	Stearns	W. C. & P	Guy Vaughan	4	90.7286	30–60	Bosch H. T.	Cone	Chain	Pennsylvania
4.	Stearns	W. C. & P.	Barney Oldfield	4	90.7286	30–60	Bosch H. T.	Cone	Chain	Pennsylvania
5.	Isotta	Isotta Company	Al. Poole	4	102.38	50	Eisemann H. T.	Disc.	Chain	Michelin
6.	Fiat	Fiat Company	Emanuel Cedrino	4	95.0336	60	Bosch L. T.	Disc.	Chain	Continental
7.	Allen-Kingston	W. C. Allen	Arthur Campbell	4	78.54	40–45	Bosch H. T.	Disc.	Shaft	Michelin
8.	Isotta	Isotta Company	H. J. Harding	4	102.38	50	Eisemann H.T.	Disc.	Chain	Michelin
9.	Isotta	J. H. Tyson	Louis Strang	4	102.38	50	Eisemann H. T.	Disc.	Chain	Michelin
10.	Stearns	F. B. Stearns	Frank Leland	4	90.72	30–50	Bosch H. T.	Cone	Chain	Pennsylvania
11.	Simplex	Palmer & Singer	R. C. Watson	4	103.884	50	Bosch H. T.	Disc.	Chain	Continental
12.	Panhard	Panhard & Levassor	George Robertson	4	103.864	50	Eisemann H. T.	Disc.	Chain	Continental.
13.	Lozier	Lozier Company	Ralph Mulford	4	86.59035	45	Bosch H. T.	Disc.	Shaft	Diamond.
14.	Lozier	Lozier Company	Henry Michener	4	86.59035	45	Bosch H. T.	Disc.	Shaft	Diamond.
15.	Maja	J. J. Brown	D. D. Murphy	4	58.92	35–40	Bosch L. T.	Disc.	Chain	Continental.
16.	Fiat	Fiat Company	E. H. Parker	4	95.0336	60	Bosch L. T.	Disc.	Chain	Continental.
17.	Thomas	Harry S. Houpt	M. Roberts	4	96.034	60	Bosch H. T.	Disc.	Chain	Diamond.
18.	Apperson	S. B. Bowman	Herbert Lytle	4	103.86	50	Bosch H. T.	Con. Band	Chain	Not decided.
19.	Simplex	Palmer & Singer	Joseph Seymour	4	103.884	50	Bosch H. T.	Disc.	Chain	Continental.
20.	Benz	L. J. Bergdoll	L. J. Bergdoll	4	103.	80			Chain	Diamond.
21.	Renault	Paul Lacroix	Julian Bloch	4	86.59035	35–45	Bosch H. T.	Cone	Shaft	Michelin.
22.	Bianchi	Percy Owen, Inc.	Felix Prossen	4	82.48	40	Bosch L. T.	Disc.	Chain	Michelin.

"Prepare to Meet Thy God" Is Inscription on Stone.



A Good Stretch of Road Near Echo Lake.

A Bad Stretch of Road Near Valhalla.

A Railroad Crossing in Mount Kisco.

five minutes per lap at top speed going. This would give 40 miles an hour average. Unless the course be improved far beyond expectations, it would seem highly improbable that an average speed of 45 miles an hour will be attained. The cars will have to hustle to finish within the time limit, and there is very likely to be more than one weak brother to get the flag before he has finished his entire course.

Order in Which They Will Start.

The drawing for the order of start in the race took place on Tuesday afternoon at the committee's headquarters in the Bryant Park Building. By way of preliminary to the drawing, Robert Lee Morrell, the chairman, outlined a scheme of drawing following the method employed in drawing the positions of the members of the various national teams in the Vanderbilt Cup race, the different makes being given recognition as teams. His idea was that the makes should be separated, to do away with possible team work. This plan would have divided the entrants practically into three divisions.

C. F. Wyckoff, of Wyckoff, Church & Partridge, was on his feet in an instant with a protest, pointing out the fact that this arrangement would insure one Stearns and one Isotta being at the tail end of the procession. At once representatives of other makes were adding their protests and calling for a free-for-all drawing.

The chairman retreated from his position and put the question to vote. The single entries, of course, all liked the Morrell plan, as it would insure them a place in the first fourteen, and the multiple entries just as naturally preferred to take their chances in a general drawing. The Morrell plan was voted down and a free-for-all drawing substituted by a vote of 11 to 8, Mr. La Croix declaring he had no preference and not voting. Bergdoll, the Benz entrant, was absent.

It was subsequently agreed, however, that should two makes be brought together in line the second one should be moved down a place. There was a preliminary drawing for the order of drawing and then came the final drawing, which resulted as follows:

No.	DRIVER.	CAR.	COUNTRY.
1.	Felix Prossen	Bianchi	Italy
2.	Emanuel Cedrino	Fiat	Italy
3.	Herbert Lytle	Apperson	America
4.	Louis Strang	Isotta	Italy
5.	F. W. Leland	Stearns	America
6.	E. H. Parker	Fiat	Italy
7.	Harry Michener	Lozier	America
8.	Guy Vaughan	Stearns	America
9.	Ralph Mulford	Lozier	America
10.	D. S. Murphy	Maja	Austria
11.	Al. Poole	Isotta	Italy
12.	Montague Roberts	Thomas	America
13.	Barney Oldfield	Stearns	America
14.	M. G. Bernin	Renault	France
15.	George Robertson	Panhard	France
16.	W. M. Hilliard	Hol-Tan-Shawmut	America
17.	A. C. Campbell	Allen-Kingston	America
18.	Julian Bloch	Renault	France
19.	H. N. Harding	Isotta	Italy
20.	L. J. Bergdoll	Benz	Germany
21.	M. J. Seymour	Simplex	America
22.	William Watson	Simplex	America

The two Simplex cars having drawn positions together at the end a question arose as to what was to be done. The suggestion that one of them be moved to the head of the line was not received with favor and the pair were with universal consent left in *statu quo* at the tail end.

Substantial Prizes Hung Up for Drivers.

With their usual generosity, the tire companies have come forward with substantial rewards for the drivers of cars who finish in the first three places on cars equipped with their tires. The Continental Caoutchouc Company is offering $650, $250 and $100 for the drivers finishing in first, second and third places, respectively, on cars equipped with Continental tires, while the Michelin Tire Company is offering similar

prizes of $500, $300 and $100 for cars equipped with Michelin tires, finishing in the same order. In addition to this, Henry Hess, of the Hess-Bright Manufacturing Company, has deposited a check for $100 with Chairman Morrell, to be awarded to the driver finishing first with a car equipped with the HB or DWF ball-bearings.

'WARE ABOUT NEW HAVEN.

NEW HAVEN, CONN, April 13.—New Haven these days is a good place for visiting autoists to slow up when passing through, owing to an energetic campaign recently instituted by the police against auto speeders. Measured courses and traps have been prepared all over the city and officers in plain clothes are daily detailed to guard them and time all automobiles passing. Several prominent automobilists have been arrested and heavily fined in the police court. The police activity is the result of a number of flagrant cases of overspeeding and accidents, two of which resulted fatally.

NIAGARA FALLS BOULEVARD.

BUFFALO, N. Y., April 13.—Every member of the Automobile Club of Buffalo is working industriously for the plans which mean the construction of a boulevard between Niagara Falls and Buffalo. The necessity for such a boulevard is felt by all automobilists. Secretary D. H. Lewis, of the club, is looking after the project, and there is no let-up in his efforts. The fund started at the last automobile show is being increased by subscriptions. Mr. Lewis says of the plan: "That a boulevard is needed between Buffalo and Niagara Falls is conceded, and it is not beyond the pale of possibility that the agitation will bring results before the year passes into history."

G & J CO. LOSES SUIT.

Following upon the adverse decision of the United States Circuit Court last summer in the action brought against the Pennsylvania Rubber Company by the G and J Company, for infringement of its patents on the clincher type of tire, the case was carried to the United States Circuit Court of Appeals for the Third District, which has just handed down a decision affirming in every respect the findings of the lower court. The latter were to the effect that the tire on which the G & J Company claimed the Pennsylvania Rubber Company to be an infringer was not the tire described in its patents, which were the basis of the action, and further that the patents in question described a device which the plaintiffs were not using on their tires, and which, consequently, could not have been infringed.

This, One of the Many Windings, Is Near Hawthorne.

"In regard to tires," says S. F. Edge, "the first thing that struck me in running cars at Brooklands was that a certain degree of inflation was the most important point. All previous instructions from tire manufacturers, and others, who should know, were summed up in the words, pump hard. We, therefore,

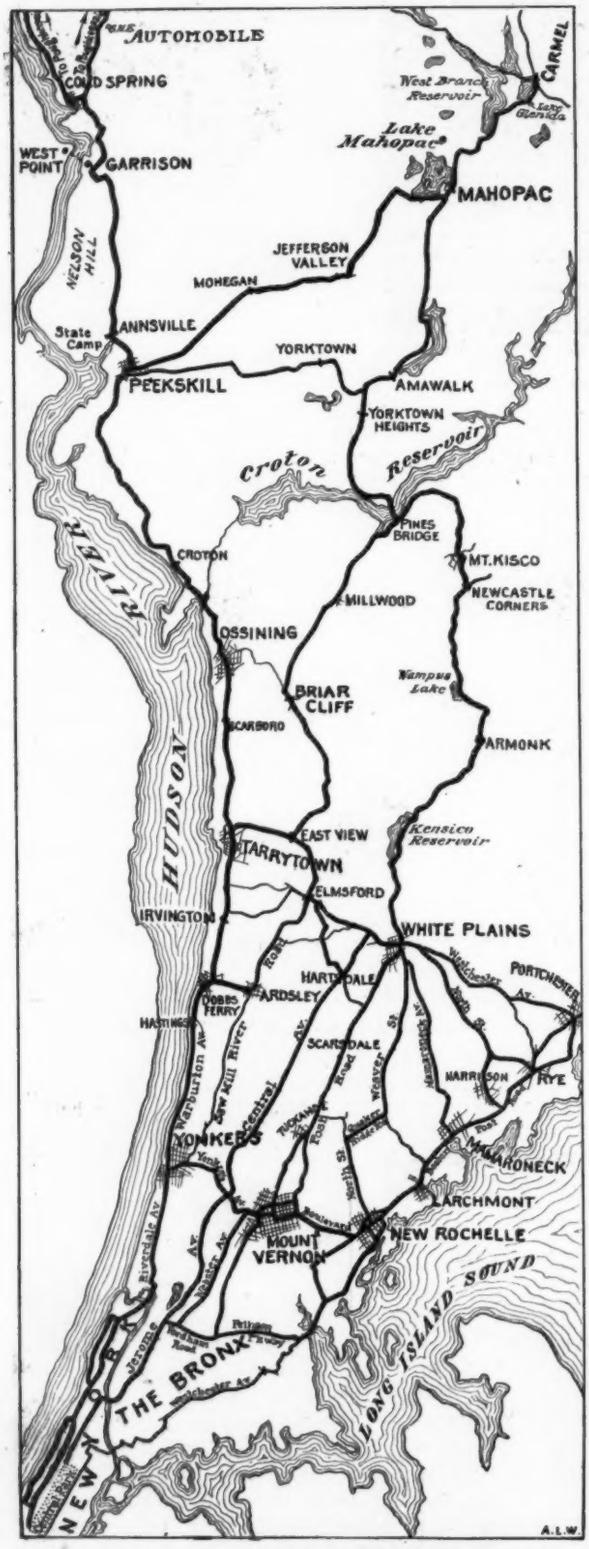
This Turn, in the Vicinity of Kensico, Is Particularly Difficult.

pumped our tires up to the pressure recommended by the tire companies. The result was extreme discomfort at high speeds, owing to the wheels continually leaving the ground; by high speeds, I mean traveling at a rate of 100 miles an hour; in other words, covering the ground at the rate of 146 2-3 feet per second."

Near Mount Kisco, Road Surface Excellent, but Usual Turns Exist.

HOW TO REACH BRIARCLIFF COURSE.

The course in Westchester County for the race follows from the starting point at Briarcliff the main road northeast to Pines Bridge, passing through Millwood and Kitchawan. Turning southeast, it winds down to Mount Kisco, on the Harlem Division of the New York Central, and then runs south through the Wampus Lake section and Armonk,



circling the Kensico Reservoir at Valhalla. From Valhalla, it runs directly west to East View and then north through Hawthorne, returning to the starting point.

Briarcliff is on the Putnam Division of the New York Central Railroad. Here will be situated the official grandstand. There will be other stands, though, at East View and above Armonk, Valhalla, Hawthorne, and Mount Kisco. Points on the course can be reached by the Harlem Division trains and East View by trolley from Tarrytown.

NEW YORK TO BRIARCLIFF MANOR, N. Y.—32.3 MILES.

Via Broadway, 155th St., Central Bridge, Jerome Ave. and Central Ave. to Hart's Corners (2 miles below White Plains), thence by the new short-cut road to Elmsford and East View. Good macadam throughout.

This is "The Official Automobile Bluebook" Standard Northbound Route to Points in Westchester County or Beyond Briarcliff Manor.

Columbus Circle—59th St. and Central Park West.

Run up Broadway to 72nd St.; at subway entrance (on left—7-10 M), keep to right of Monument one block on Amsterdam Ave. Turn left on 73rd St. (8-10 M) and 1st right—again up Broadway (closed to northbound vehicles 72nd to 73rd Sts.).

Follow double car-tracks across 110th St. (Cathedral Parkway—2.7 M), downgrade along elevated "subway," crossing Manhattan St. (3.5 M—caution for trolleys and vehicles from right and left.) Ascend grade, direct to 155th St. (upper boundary of Trinity Cemetery—4.8 M); turn 90° right, straight ahead across 155th St. viaduct onto

5.2 Central Bridge.—(No toll, but draw frequently open.)

Straight ahead (leaving trolleys to left—5.4 M), into Jerome Ave.; meeting car-tracks from left (5.7 M) follow them across Fordham Road (8.3 M). Continue on Jerome Ave.—several curves, but no turns—crossing (at right angles, just after passing Empire Race-track on right),

13.1 Yonkers Ave.—(About midway between Yonkers and Mt. Vernon.)

The next 7.7 miles (to Hart's Corners) straight macadam—no trolleys or towns of size, but occasional autotraps in the few crossroads hamlets.

Direct up Central Ave. across Tuckahoe Road (15.6 M), running through Greenville (19.3 M) to Hart's Corners (20.8 M—easily missed at speed, fire station on left, wagon shop on right). Here turn 90° left; 200 feet beyond turn right and immediately left, taking right fork 50 feet beyond, ascending long hill—fine views!

Coming to end of road (21.4 M) turn right, straight ahead through cross-roads (caution for vehicles from right and left), descending—more fine views—to trolley line at foot of hill (23.7 M). Bear left across car-tracks (caution) into the White Plains-Tarrytown road to 4-corners just beyond (immediately before RR.).

23.8 Elmsford.—(A notorious autotrap.)

Turn 90° right, direct 2 3-10 miles to "T" in road at East View (26.1 M—Westchester Co. Alms House on right); again turn 90° right—across concrete bridge (26.9 M), taking left at fork (28.5 M). Thence on main-traveled road running diagonally across Putnam Division, N. Y. C. RR. (dangerous grade—30.7 M); at fork immediately beyond bear right through 4-corners (large stone church on left), at

32.3 Briarcliff Manor—Briarcliff Lodge; Pocantico Lodge (open throughout the year).

NEW YORK TO BRIARCLIFF MANOR, N. Y.—31.9 MILES.

Via Broadway all way across the Harlem River Ship Canal to West 230th St.; thence by West 230th St. and Riverdale Ave. to Yonkers—extended to Dobbs Ferry via Warburton Ave., Yonkers and Hastings-on-Hudson. Turning inland at Dobbs Ferry to the Saw Mill River road, this route reaches Briarcliff Manor via Ardsley and Elmsford.

Columbus Circle—59th St. and Central Park West.

Run up Broadway to 72nd St.; at subway entrance (on left—7-10 M), keep to right of Monument one block on Amsterdam Ave. Turn left on 73rd St. (8-10 M) and 1st right—again up Broadway (closed to northbound vehicles 72nd to 73rd Sts.).

Follow double car-tracks across 110th St. (Cathedral Parkway—2.7 M), downgrade along elevated "subway," crossing Manhattan St. (3.5 M—caution for trolleys and vehicles from right and left). Ascend grade, direct to fork (5.5 M just after passing base-ball grounds on left); bear diagonally left with Broadway (St. Nicholas Ave. continues straight ahead), following double car-tracks all way to and under elevated "subway" (8.1 M).

Straight ahead across drawbridge over Harlem River Ship Canal (8.3 M—no toll) to 230th St. (8.6 M—just before left curve of elevated structure). Turn 90° left on 230th St. to end of same at Riverdale Ave. (8.9 M); here turn right, upgrade on macadam. Run direct through Riverdale and Mt. St. Vincent (10.9 M); picking up trolleys (11.3 M) follow tracks to intersection of Main St.,

12.8 Yonkers.—Riverdale Ave., Main St. and Warburton Ave.

Park Hill Inn; Francfort's Restaurant, both on Broadway, below Getty Sq. Yonkers Auto Station, 71 S. Broadway.

Straight ahead across Main St., into Warburton Ave., past Manor Hall and Monument (on left—12.9 M), following trolley to and over viaduct at Hastings-on-Hudson (16.9 M). Immediately beyond curve left (leaving car-tracks to right), direct on main road to fork just below Dobbs Ferry (18

Map of the Course.

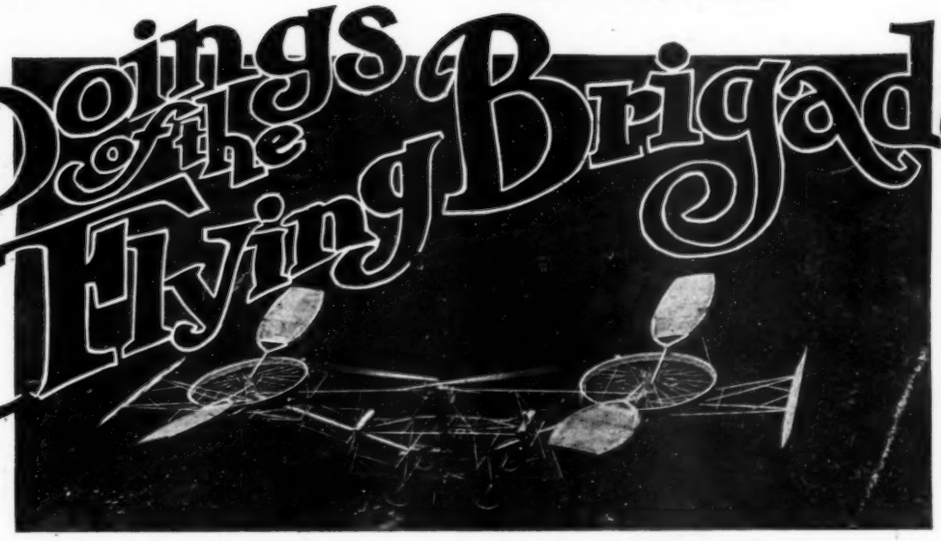
M); here (tablet on right marking Washington's Headquarters, 1781), keep right.

Descend grade (18.5 M), passing stone watering trough in road (18.6 M; at fork immediately beyond (18.7 M—light-colored stone church on left), run nearly straight ahead (road to Irvington and Tarrytown takes left). Thence straight ahead on Ashburton Ave. (macadam), crossing RR. at Ardsley station (19.7 M); at drinking fountain just beyond (19.8 M) bear left into the Saw Mill River road.

Avoiding all right-hand macadam forks (uphill), keep on macadam in valley, direct to trolley line at 4-corners, Elmsford (23.4 M). Continue straight ahead (road from New York via Central Ave. and Hart's Corners comes in from the east and turns right), 2 3-10 miles to "T" in road at East View (25.7 M—Westchester Co. Alms House on right); here turn 90° right across concrete bridge (26.5 M), taking left at fork (28.1 M). Thence on main-traveled road running diagonally across Putnam Division, N. Y. C. RR. (dangerous grade—30.3 M); at fork immediately beyond bear right through 4-corners (large stone church on left), at

31.9 Briarcliff Manor, Briarcliff Lodge.—Pocantico Lodge (open throughout the year).

Doings of the Flying Brigade



Paul Cornu's Helicoptere Which Recently Scored Fairly Successfully Near Paris.

PARIS, April 5.—For the first time, a *helicoptere* machine, built on a large scale, has been able to raise its motor and mechanic from the ground and fly in the presence of a number of spectators. This is the Paul Cornu apparatus, and recently it raised itself about 1.50 meters from the ground. It consists of a tubular frame stayed by cables. The seat of the aviator is placed at the center, as is also the Antoinette motor. By means of a special transmission using flat belts, the latter operates two large screws, 6 meters in diameter, and fixed at the ends of the frame. The entire machine measures 12 meters in length and is dependent entirely upon these screws for its elevation. The propelling and steering members consist of two planes, mounted at the forward and rear extremities of the apparatus, immediately beneath the screws. By means of a lever, the aviator can regulate the inclination of these planes, as well as the speed and the direction of the flight, ahead or astern. A second lever commands the lateral displacement of the same planes, which then perform the office of steering and permit the machine to go to the right or left. The weight of the apparatus, including the aviator, is 260 kilos, and it is sustained in the air by the turning of the screws at the rate of 90 revolutions per minute. Propulsion is effected by the reaction of the air thrown by the propellers against the planes. A 24-horsepower motor is employed, but in the course of the trials the best results were obtained when the motor was only delivering 12 horsepower.

The aviation section of the Aero Club of America held a meeting at the club's rooms in New York City on Monday.

It developed into an interesting experience meeting, during the course of which various members had adventures to relate and suggestions to make. Lee S. Burbridge, who recently arrived from Europe, where he investigated the status of aerial navigation in France, argued that progress in the air in this country was hampered by the fact that it was not more generally accepted by the public as an accomplished fact.

In the course of the discussion, Albert C. Triaca, chairman of the committee, Daniel L. Braine, Augustus A. Post, and S. Y. Beach were agreed that what the art in this country demanded was sufficient prizes to attract attention and to insure the efforts of American inventors to the solution of the airship problem. Mr. Triaca prophesied that within two months the Wright brothers, who have a contract to build an airship for the government, would show a flight of 100 miles without stop.

For some time there has been a great deal of confidence expressed by those who claim to know, in upholding this opinion.

A. C. A. ELECTS AND RETIRING PRESIDENT HOYT RECOMMENDS

THE annual meeting of the Automobile Club of America took place Tuesday night at its clubhouse on West Fifty-fourth street, New York City. These officers were elected:

President, E. H. Gary; first vice-president, Henry Sanderson; second vice-president, William G. McAdoo; third vice-president, Robert Lee Morrell; treasurer, Edgar L. Marston; one governor to serve one year, class of 1909, Gen. Horace Porter; three governors to serve three years, class of 1911, Frederick D. Underwood, William Pierson Hamilton, and Waldron Williams; three governors to serve four years, class of 1912, Cornelius Vanderbilt, Colgate Hoyt, and Dr. Schuyler Skaats Wheeler.

In his annual report, Colgate Hoyt, the retiring president, called attention to the fact that he is still of the belief that the A. C. A., and apparently not the American Automobile Association, with its 200 clubs, should be the national organization of the country. The manufacturers of automobiles are told by Mr. Hoyt that they are now sufficiently strong to conduct their own shows, "without our support or assistance, and that the club should now retire from the field."

Attention is called to the successful good roads and good laws conference held by A. A. A. clubs at Springfield, Mass., last September, and which will be repeated in a national manner at Buffalo on the two days preceding the start of the annual A. A. A. tour for the Glidden and Hower trophies. Mr. Hoyt recommends that the A. C. A. organize such a congress, seeming to consider that the Buffalo affair will not be sufficient to answer the needs of the situation. Mr. Hoyt also recommends that there "be held this spring or summer an international touring car trial, somewhat on the lines of the trial to be held by the Royal Automobile Club of Great Britain, to provide an exhaustive test of touring cars, each car being given a definite rating under a standard formula, and that an exhaustive tire test be held in connection with such trial."

Reference is made to the fostering of inter-club relationship, and the statement is made that an agreement has been reached with the Massachusetts Automobile Club. It is a well-known fact that the A. A. A. clubs throughout the country now have an existing understanding concerning reciprocal courtesies, though Mr. Hoyt ignores this fact.

The statement is made that the A. C. A. declined to endorse the Federal Registration Bill of the A. A. A., on the ground that it is unconstitutional in its provisions. Mr. Hoyt calls attention to the rejection (?) of the bill by the Judiciary Committee of the House of Representatives, though Chairman Jenkins the other day publicly stated that his committee had yet to reach a decision.

Mr. Hoyt mentions the activities of A. R. Shattuck in good road matters. Mr. Niles is also commended for his services.

The total cost of the new clubhouse is placed at about $800,000, the total mortgage obligations of which is now $610,000, $40,000 of the second mortgage bond having been cancelled during the past year with the club's show profits, initiation fees from new members, and fees from life memberships. The present active membership is 1,223, with 30 life members, and 287 associate members. The net gain in membership during the year was 291.

FOREIGNERS DECLINE TO WAIT AND SAIL FOR JAPAN

BY way of reward for having gained sufficient lead to investigate Alaskan conditions before any of its competitors could follow, the Thomas now finds itself a tail-ender, bound back for Seattle on the steamer *Bertha,* while the Zust and De Dion crews, who were a fortnight behind it at San Francisco, are on the *Aki-Maru,* bound for Yokohama, Japan. Lieutenant Koeppel, of the Protos crew, who is at Seattle, announces his intention of sailing for Vladivostok with the Thomas, even if necessary to ship the car from Ogden, Utah, where it is now undergoing repairs. This would naturally cost the German car its status as a contestant. The Zust crew left Seattle in charge of Heinrich Haaga, the mechanic, Sirtori's frequent differences with the management having caused his contract to be summarily terminated at Seattle. According to R. W. Volmoeller, of the Zust Company, who is now in New York, the shipment of the Zust with the De Dion was contrary to explicit orders to await the arrival of the Thomas, and to sail with the latter direct to Vladivostok. Mr. Volmoeller declared it was necessary to do this in view of the agreement with the Thomas Company, in anticipation of the possibility of being unable to cross Alaska, due to the thaw.

The Thomas crew received as enthusiastic a reception at Valdez as the entire population of that frontier settlement could possibly provide, and were taken out to Keystone cañon the day after their arrival to investigate conditions. They went as far as Comfort Camp, the first station on the trail to Fairbanks, with the aid of a one-horse sleigh, and tests showed that it would be utterly impossible to proceed over the same route with a heavy car. It was the consensus of opinion that the chances would not be much better, even in winter, and it did not take George Schuester long to make up his mind to return, the Thomas being put aboard the *Bertha,* which sailed the following day on the return trip to Seattle.

According to advices from Seattle, the *Bertha* is due there Friday next, April 17, and the Thomas will be immediately transferred to the steamer *Glenlogan,* leaving on Saturday direct for Vladivostok. With good weather, the passage should not exceed 20 days, so that the Americans should arrive in Siberia on May 7, not more than two or three days after the French and Italian crews, and if the latter should miss connections in Japan, might reach that country before them.

The following statement issued by the E. R. Thomas Company last Saturday, throws an interesting side-light on the matter, the conclusion of which may involve international correspondence:

"The announcement that the Thomas Flyer, America's entry in the New York to Paris race, is returning to Seattle from Alaska, has put the whole outlook of the race in a peculiar light, and one which raises some interesting questions. Perhaps the American car has already won the race without continuing the race to Paris. In the original rules, which were, however, very vague, it stated that should the journey not be continued, the winner would be that car which went the farthest on the original route. This the Thomas has done by going to Alaska, and it is altogether unlikely that any other car will go by way of that country.

"The Thomas car has lost the lead of two weeks which it had on its nearest competitor at San Francisco, through a lot of strategy which was played by the foreigners. Arriving at San Francisco, about a thousand miles ahead of the race, there was no opportunity for any conference nor any decision as to the future course, and it remained for the Thomas car either to await the coming of the other competitors or to start on the route originally planned. No satisfactory direction nor explantation could be received from the officials and committees in charge of the race and, therefore, the car was shipped to Valdez by the steamship Santa Barbara. Upon their arrival at Valdez the American crew apparently discovered what people familiar with Alaska had already surmised—that the roads were absolutely impassable—and it remained for them to retrace their course to Seattle. Here they will find the Italian and French cars, and it is altogether probable that the three cars will be shipped direct to Yokohama, continue thence to Vladivostok and by the Central Asiatic route, rather than by the north coast. This will put America's champion again back on an equal footing with its two nearest foreign competitors and within hailing distance of the third. The lead of about a thousand miles, or, reckoned in days, of about two weeks, which it had upon the foreigners at San Francisco, is lost.

The advantage which it would have had by arriving in Alaska on an earlier steamer, is also lost. It now has no advantage over the foreigners, except its reputation, its crew of American experts and the excellence of its American manufacture. On the other hand, it now has an opportunity to win this race for the third time. It has already defeated the entire field by a sufficient margin to prove finally and conclusively that it is the best car for American road conditions and American road travel. Secondly, it has won the race according to the original rules, by going farther over the original course than any of the other competitors. It now remains for the Thomas, starting on an even footing with the foreigners on foreign soil, to demonstrate its superiority over these cars on their soil as conclusively as it did in its own country.

E. R. Thomas Motor Company.

Buffalo, N. Y., April 11, 1908.

MAXWELL WINS A THOUSAND-DOLLAR CROSS-COUNTRY

PITTSBURG, Pa., April 13.—The Maxwell-Reo $1,000 match race to Philadelphia and back ended this morning in the victory of the Maxwell. C. W. Kelsey and Joe Emerling, its initial and homestretch pilots, arrived here at 9:30 o'clock this morning, having made the round trip of 592 miles in 44 hours. E. L. Seeley and Greenwood, his mate, who manned the Reo, did not reach the finish until 18 hours later.

The match was the outcome of a series of advertising challenges published during the Pittsburg show. The Reo agent was stirred up by the Pelletier publicity methods, and declared he would "call the Maxwell bluff," so he offered to make an endurance run match to Philadelphia and back for $500 a side. The Maxwell folks did not like the "bluff" innuendo a little bit, and promptly accepted the challenge. The terms were more quickly arranged than is generally the case in these exchanges of advertising compliments between dealers, and with no superfluous nonsense over conditions beyond the agreement that each car should carry an observer acting for the other, an out and out race was arranged.

The race was started at 1:30 o'clock on Saturday afternoon, the route laid out being in order through Laurel Ridge, Bedford Springs, Gettysburg, York and Lancaster, much of which was embraced in the course of last year's Glidden tour. The Maxwell arrived at the Bellevue-Stratford in Philadelphia at 11:30 o'clock on Sunday, Kelsey and Emerling having covered the intervening 296 miles in 22 hours. The Reo was over six hours behind, not arriving until 6 o'clock, having been detained by an accident.

The Maxwell at once started on the return trip. Longstreth and Gates, of the Maxwell-Briscoe Philadelphia branch, were its pilots as far as Bedford Springs, where Kelsey and Emerling again manned the car for its run over the homestretch to Pittsburg. The return run was made in exactly the same time required for the outward bound trip. The first and last 100 miles of the route was rough going up and down hill and through mud. The remaining 400 miles was over macadam most of the way with altogether excellent traveling, the season of the year being considered.

The winning car, which was shod with Ajax tires, had good tire luck, sustaining but five punctures during the long 592 mile run, despite the fact that rough mountain roads had to be traversed for one-third of the distance.

New York's Successful Carnival Means Annual Event

From the Top of Fort George Hill a Magnificent Panorama Is Presented of the Country for Miles Around.

"CARNIVAL WEEK," as a formal inauguration of the business season and as a "get up" to the automobilist from his long winter sleep to the realization that spring, with all its joyous saunterings and delightful tours, is at hand, is now assured as an annual fixture on the metropolitan outing calendar. The phenomenal success of last week's New York automobile celebration, backed by triumphs along the same line in Chicago and Indianapolis, makes the spread of the spring carnival idea all over the country by next year more than a mere probability.

As an eyeopener to the extent of automobiling and the magnitude of the motor car industry, New York's carnival was a revelation. A half million people turned out to see Tuesday night's parade. Ten thousand more faced a chilling wind to watch the cars climb Fort George hill on Thursday afternoon. To the practically universal decoration of the hundred or more buildings devoted to New York's trade was added a remarkably widespread decorative emulation by the great hotels and big restaurants along Broadway until an embellishment was attained seldom surpassed even on the occasion of great national celebrations.

And what of results? Just here comes an illustration of the carnival spirit that pervaded the local tradesmen. Their main idea was the success of the carnival as a celebration and demonstration of the sport and industry first, last, and all the time. As a matter of fact, they have been too busy with helping and hurrahing to permit so insignificant a matter as their own personal resultant benefit to intrude upon their discussion of the carnival. They were out to wake up New York; to dispel pessimism; to arouse the public to the permanency and greatness of the automobile rather than to put in six days to pulling purchasers into their salesrooms. They all had a lot of visitors, gave many demonstrations, and made sales, some more, some less. They are willing to let it go at that. But every one of them believes the much too prevalent pessimism of the past winter has been scattered to the winds and that a harvest will follow, wherein will be reaped a crop in satisfactory proportion to the reduced output of an off year following a financial panic and embracing the business-halting conditions of a presidential election.

The energy and the *esprit de corps* displayed in the promotion of the carnival have been among its most gratifying and encouraging features. "Automobile Row" has proved it possible to pull together when the common weal has been at stake. Dealers have come to know one another better and to realize what really good, hard-working, honest fellows make up the local trade fraternity. The "Knockers' Club" will now lose many of its members to the "Helping Hand Society."

Starting at the Bottom of the Grade.

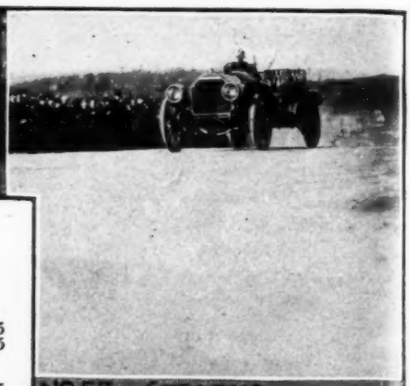
The committee in charge, with General John T. Cutting, who was at the bottom of the start of the carnival and to whose energy, youthful enthusiasm, and limitless unselfishness much of the success of the carnival is due, at its head, did splendid work, each separate department looking after its own details without a hitch.

Colonel K. C. Pardee, chairman of the hill climb and parade committees; R. G. Howell, grand marshal; Walter R. Lee, secretary of the New York Automobile Trade Association, and C. W. Wurster, who looked after the advertising and publicity, proved able executive heads, but worked no harder and no more efficient than did Percy Owen, Frank Eveland, C. R. Teabolt, C. P. Skinner, R. W. Newton, and Alexander Howell, their associates on the executive and finance committees.

The response of the trade was generous to the call for contributions. Some $8,500 was subscribed to the general fund. General Cutting says that the raising of $20,000 next year will be easy. It is planned to make next year's carnival far more elaborate, and have the week not only embrace a parade and hill climb, but racing and other contests as well; in fact, a varied program.

Story of the Fort George Climb.

How great an interest had been aroused, not only among automobilists but also the public at large, in the carnival was attested by the enormous crowd in attendance at the hill climb, which took place on Fort George hill on Thursday afternoon. Every point of vantage at the top and even at the bottom of the grade was occupied by automobiles. The crowd was massed at the start and finish, packed along the curb on either side, and perched upon the rocks on the precipitous hillside. There could not have been far from 10,000 onlookers. The throng was well repaid for facing a stiff wind, more than bordering on the merely chilly, by a series of snappy uphill rushes that kept interest at fever heat from start to finish. The management of the affair and the promptness of the dispatch of the climbers were perfection itself. That 71 cars were started, finished and timed in 109 minutes gives an idea of the efficient handling.



No 66 STEVENS DURYEA

No 57 STEARNS

No 37 CORBIN

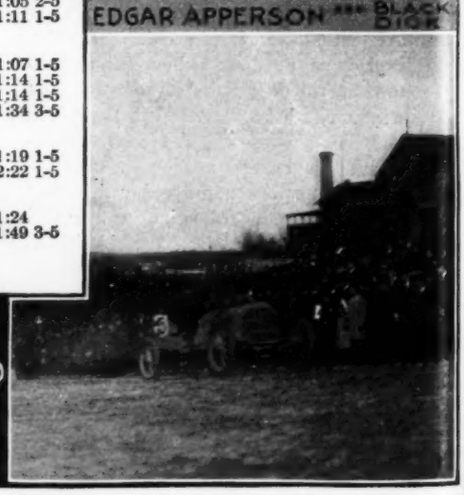
No 3 MITCHELL

No 12 JACKSON

No 1 MAXWELL

ROBERT GUGGENHEIM RENAULT AMATEUR

EDGAR APPERSON *** BLACK BIRD



FORT GEORGE HILL CLIMB RESULTS.

Open Free-for-All. All Types and Motive Power.

No.	Car	H.P.	Price	Driver	Time
71	White	30	$3,700	Walter C. White	0:32 1-5
70	White	30	3,700	Walter C. White	0:32 2-5
69	Apperson	62	8,000	Edgar Apperson	0:36
76	Fiat	60	Special	Emanuel Cedrino	0:37
75	Stevens-Duryea	50	6,000	P. J. Robinson	0:37 3-5
50	Apperson	62	7,500	Edgar Apperson	0:38
73	Matheson	60	7,500	J. B. Ryall	0:40 2-5
74	Pope-Hartford	30	2,950	J. P. Grady	0:42 2-5
77	Knox	30	2,650	William Bourque	0:43 4-5
67	Pennsylvania	50	3,000	Leonard Zengle	0:45 1-5
68	Renault	35-45	8,000	Robert Guggenheim	0:47 4-5
79	Stoddard-Dayton	40	2,700	H. S. Hodson	0:49
72	White	20	2,500	Clarence H. Lane	0:52 1-5

Six-cylinder Gasoline Cars, Over $4,000.

66	Stevens-Duryea	50	$6,000	P. J. Robinson	0:38 4-5
65	Stearns	45-90	6,250	Guy Vaughan	0:46 4-5
63	Hotchkiss	65	4,000	Charles Gatzen	0:52 3-5
62	Acme	45	4,250	Adam Arnold	0:55

Four-cylinder Gasoline Cars, $4,000 and Over.

57	Stearns	30-60	$4,600	Guy Vaughn	0:42 1-5
59	Stearns	30-60	4,600	D. E. Farrell	0:42 2-5
58	Stearns	30-60	4,600	Kingsley Swan	0:42 3-5
61	Stearns	30-60	4,600	L. M. Travis	0:42 4-5
52	Simplex	50	5,750	Frank Lescault	0:43 3-5
51	Simplex	50	5,750	Carl Broessel	0:44
64	Stearns	30-60	4,600	A. J. Picard	0:44 3-5
55	Stearns	30-60	4,600	Barney Oldfield	0:46
60	Stearns	30-60	4,600	Halstead Swan	0:46
56	Stearns	30-60	4,600	Arthur Warren	0:47
85	Stearns	30-60	4,600	Irving Fickling	0:48 3-5
49	Renault	35-45	8,000	Robert Guggenheim	0:49

Steam, Gasoline or Electric Cars, $2,001 to $3,000.

37	Corbin	30	$2,500	J. W. Swan	0:42 4-5
40	Knox	30	2,650	William Bourque	0:45
36	Corbin	30	2,650	W. G. Barbour	0:48 4-5
39	Pullman	40	3,000	F. Cimiotti	0:49 4-5
41	Knox	25-30	2,500	Jerry Lynch	0:52 4-5
38	White	20	2,500	Clarence H Lane	1:07

Gasoline Cars, $2,001 to $3,000.

18	Corbin	30	$2,500	J. W. Swan	0:43 4-5
34	Knox	30	2,650	William Bourque	0:46 2-5
20	Pope-Hartford	30	2,950	J. P. Grady	0:47
19	Stoddard-Dayton	40	2,750	Charles Miller	0:47 4-5
15	Pennsylvania	50	3,000	Leonard Zengle	0:49
21	Pope-Hartford	25	2,650	J. P. Grady	0:49
22	Pope-Hartford	30	2,950	Philip Heiner	0:50
17	Corbin	30	2,650	W. G. Barbour	0:50
28	Pope-Hartford	25-30	2,950	C. Pentoney	0:50 1-5
26	Pullman	40	3,000	F. Cimiotti	0:49 4-5
16	Stoddard-Dayton	40	2,700	H. S. Hodson	0:54 2-5
23	National	45	3,000	D. C. Teetor	0:55 4-5
27	Glide	45	3,000	J. C. McCaffrey	0:58 2-5
32	Crawford	40	3,000	R. S. Crawford	0:59 4-5
29	Oldsmobile	35	2,750	Arthur Weisbecker	1:00 1-5

Gasoline Cars, from $3,001 to $4,000.

46	Stevens-Duryea	35	$3,500	P. J. Robinson	0:45
45	Cleveland	40	3,500	Frank McCaffrey	0:55 3-5
47	Mora	42	3,500	W. W. Burke	0:58 3-5
44	Allen-Kingston	40-45	3,900	Ralph de Palma	1:05 1-5

Steam Cars Only.

82	White	20	$2,500	Charles H. Lane	0:54

Gasoline Cars, from $1,251 to $2,000.

12	Jackson	35	$2,000	Bob Burman	0:52 3-5
9	Corbin	24	1,250	Harry B. Tucker	0:55 4-5
8	Aerocar	30	1,850	Chris White	0:58
7	Mitchell	35	2,000	A. D. Edgerton	1:00 3-5
10	Maxwell	24	1,750	Charles Fleming	1:02 2-5
11	Pullman	20	2,000	R. Morton	1:05 2-5
14	Oldsmobile	32	1,900	E. Stuenwald	1:11 1-5

Electric Cars, All Types.

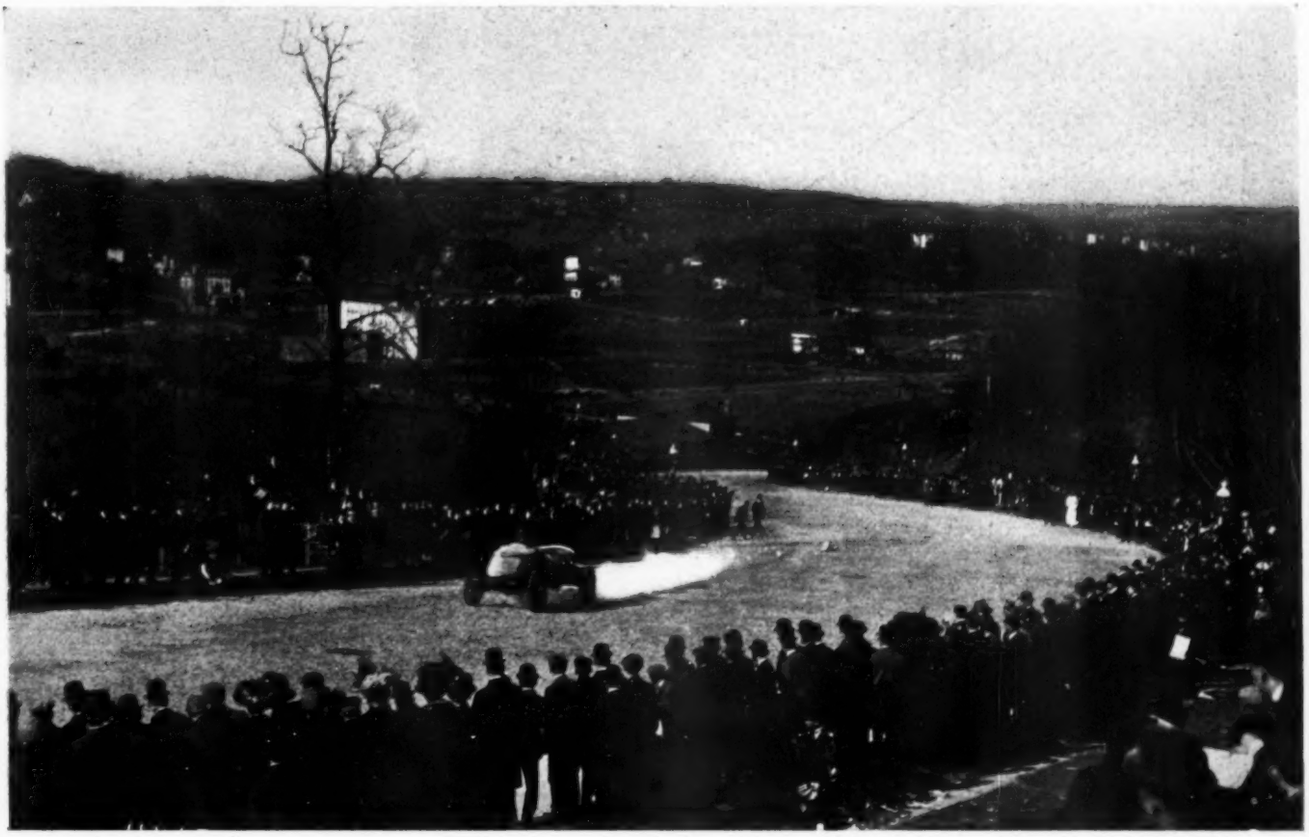
3	Mitchell	20	$1,000	Ward Olney	1:07 1-5
5	Reo	16	1,000	R. L. Lockwood	1:14 1-5
6	Overland	22	1,250	Thomas Forbes	1:14 1-5
4	Jackson	22	1,250	Bob Burman	1:34 3-5

Gasoline Cars, $850 or Under.

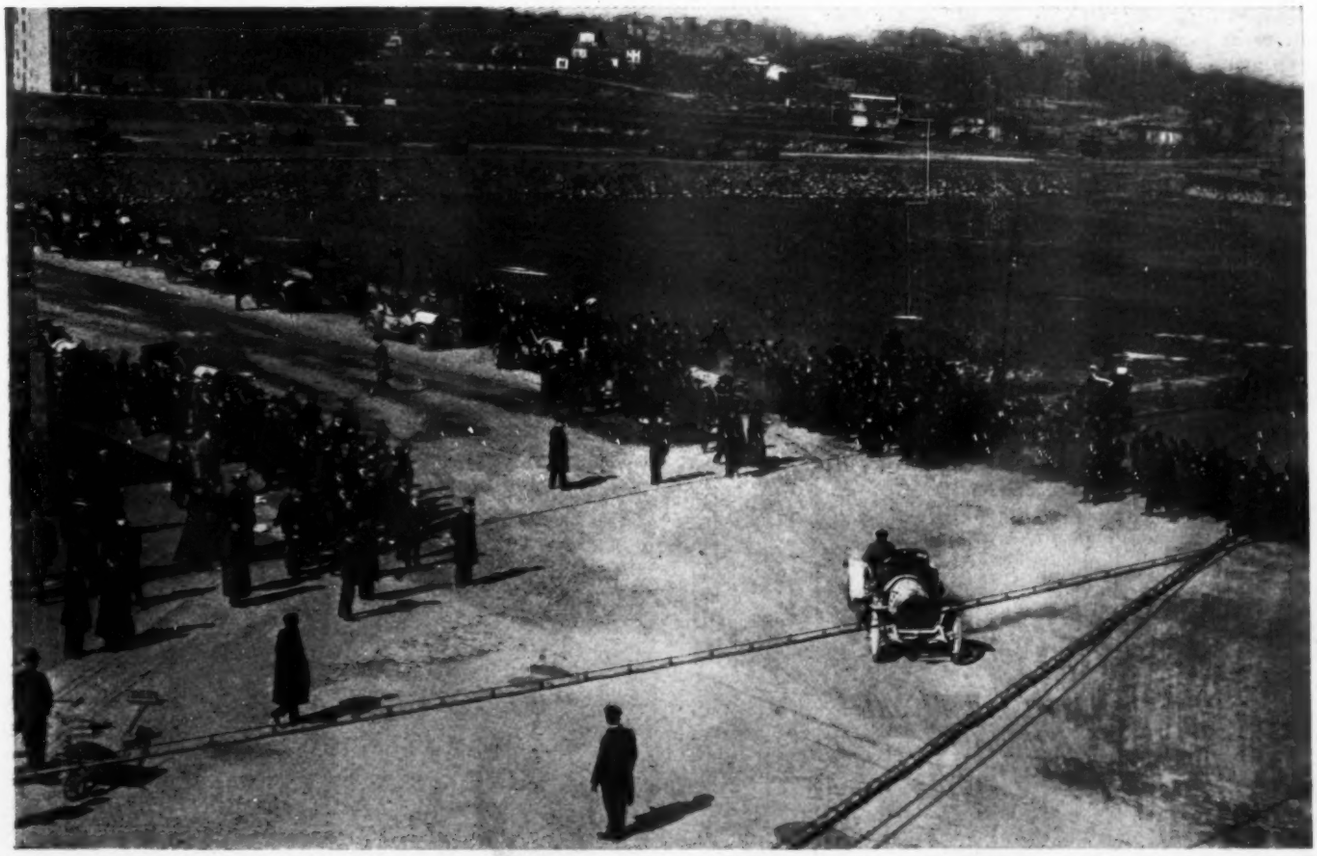
1	Maxwell	14	$825	Charles Fleming	1:19 1-5
2	Maxwell	14	825	J. Ross	2:22 1-5

Gasoline Cars, from $851 to $1,250.

84	Babcock	3	$1,500	H. E. Wagner	1:24
83	Babcock	3	1,700	Robert Clyde	1:49 3-5



The White Steamer, Winner of the Free-For-All, in Full Whistling Cry on Its Upward Journey to the Finishing Point.



Before the Climb Began the Cars Were Lined Up at the Bottom, and Starter Wagner Thus Made His Work the Easier.

Rocks Supplied Uncomfortable Vantage Points.

Packard's Truck Sturdily Made the Climb.

With A. R. Pardington as referee, Fred J. Wagner as starter, and the New York Timers' Club in command of the timing machine, S. M. Butler, C. J. Dieges, Lieutenant P. A. Sayles, and E. LeRoy Pelletier holding the watches, everything moved with the precision of well-oiled machinery.

The enthusiastic co-operation that marked the progress of the whole carnival was in evidence in the response of the dealers to the call for entries, 71 cars actually starting in the 11 events scheduled. The contests were essentially dealers' demonstrations, for with the single exception of the free-for-all, every event was for stock cars and stock cars with every bit of equipment carried at that. The difficulty of the climb was greatly enhanced by a start from an absolute standstill with a run-in of less than 200 feet before the actual climbing began, the time, be it remembered, being taken from the actual start of the car and not from the time of its beginning the ascent. In last year's contest with a flying start, Frank Leland set a record mark of 29 seconds with a six-cylinder Stearns. The estimate of 10 seconds difference to the bad under this spring's conditions as compared with last autumn's was confirmed by that drop in times of the average of the big Stearns brigade. The Fort George hill course, over which the cars were timed, is a 1,900 foot stretch of Belgian block and a finishing stretch of macadam, with an average rise of 11 per cent.

The high speed honors of the climb were carried off by Walter C. White, who captured the free-for-all trophy and also the cup offered for the fastest time, with a score of 32 1-5 seconds. The White steamers gained added laurels by Walter White's putting across the tape a second car in :32 2-5, thus capturing second speed honors as well, and by a stock car of this same make also winning the event for steam machines.

Edgar Apperson proved his Apperson to be the fastest of the gasoline contenders by a record of 36 seconds in the free-for-all. Referee Pardington, by the way, barred this Apperson "Black Dick," which was said to be a counterpart of the company's Vanderbilt Cup racer of 1906, from the stock car class on the ground that it did not comply with the stock car conditions of the rules.

The best climber in the stock car division evolved in the Stevens-Duryea "Big Six," which, piloted by P. J. Robinson, captured not only the $3,001 to $4,000 gasoline event, but the six-cylinder cup as well.

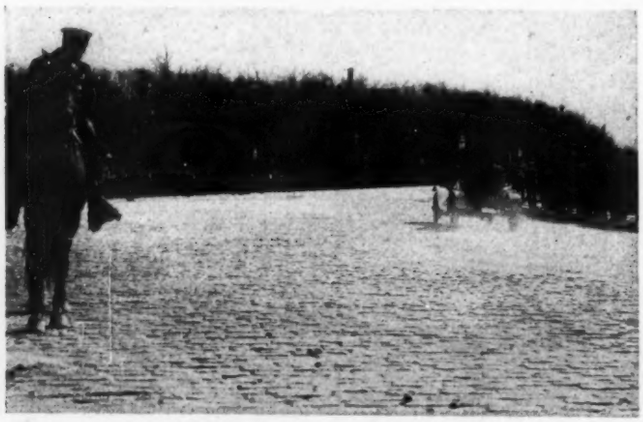
Four-cylinder gasoline stock car supremacy perched upon the banners of the Stearns, Guy Vaughan winning the $4,000 and over event in 42 1-5 seconds.

A double victory went to the Corbin, J. W. Swan capturing not only the $2,001 to $3,000 gasoline climb from the biggest field of the day, but the all-type class with the same price limitations.

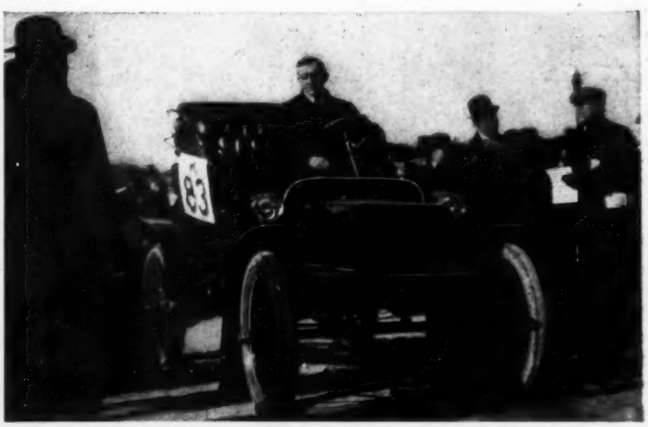
The other gasoline events went to a Maxwell in the $850 and under, a Mitchell in the $851 to $1,250, and a Jackson in the $1,251 to $2,000 class. H. E. Wagner carried off the electric cup, his Babcock making the ascent in 1:24.

A score of carloads of enthusiasts braved the storm and ploughed through the mud on Friday night to make good the "joy ride" feature of the carnival program, which had Bronxville as its objective point and a dinner at Grammatan Inn as its wind-up. There were 171 tickets sold for the banquet and 125 were on hand at the door with their meal tickets; many, of course, had come by train. At the conclusion of the dinner, General Cutting circled around among the tables and jollied the newspaper boys and others into indisputably impromptu speeches.

Carnival Week wound up with the presentation of the prizes at the vaudeville smoker, given by and at the Automobile Club of America. Following the presentation of the prizes, a surprise was sprung on General Cutting by Col. K. C. Pardee, presenting to him a handsome silver loving cup on behalf of his associates on the carnival committee.



Very Efficient Were the Police Guard.



Referee Pardington and Chairman Thompson.

Britain Has Taken Lead in Commercial Vehicle Field

By W. F. Bradley

LONDON, April 10.—There is no necessity to visit Olympia to know that the Britisher is intensely interested in the application of motor vehicles to business purposes; a run through the streets of the capital is sufficient. But to realize to what extent the commercial vehicle has taken a hold on the Britisher, the big inartistic Olympia hall at West Kensington should be entered. Right here credit should be given to the Englishman for the preponderating position he has won in the commercial vehicle world. Though working under the disadvantage of a late start, and having his doors wide open to all foreign products, he is fully master of his own market, as is shown by the proportion of British and foreign firms at the second annual commercial vehicle and motor boat exhibition, organized by the Society of Motor Manufacturers and Traders.

America has as her sole representative in the vehicle class a Frayer-Miller truck and engine, shown by the Darwen Automobile Agency, recently appointed sole representatives for the Oscar Lear Company in the British Isles. McCord oilers were handled by an agent, and Goodrich tires occupied a large stand under the name of the British representative. France had as its chief representatives, Renault, Berliet, De Dion, Darracq, Darracq-Serpollet, Georges Richard and Royal. Italy had Fiat; Germany had a couple of representatives; Switzerland one; but the rest—and they were a large majority—were British firms.

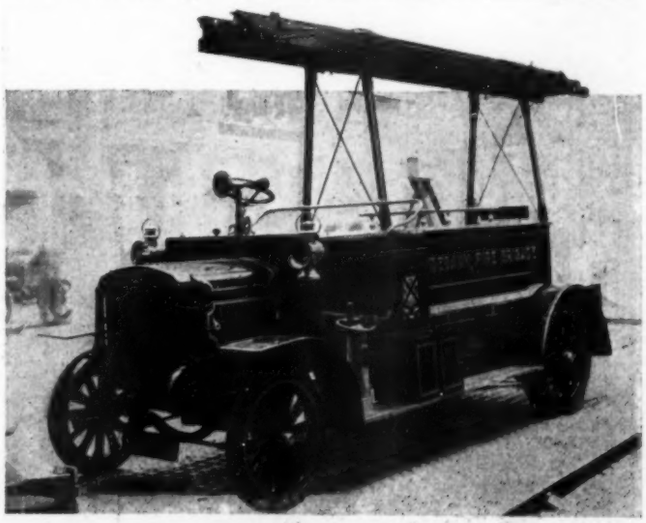
Three distinct classes might be formed of the commercial vehicles prominent before the British public. The taxicab, together with the light delivery wagon, the two being one so far as mechanical features are concerned, occupy first position. Large passenger vehicles for service in connection with railroad companies come second in importance, closely followed by gasoline and steam trucks, of from two to ten tons load capacity. This year the motor 'bus is in the minority, probably owing to the fact that in the metropolis, at any rate, the supply has exceeded the demand. Passenger vehicles for other services, however, such as auxiliary railroad work, feeders in connection with surface cars, and observation automobiles in holiday resorts are plentiful. For heavy traction, steam more than holds its own in England, and for vehicles carrying but three ton loads there is keen competition between the two systems.

Taxicabs Are Now the Center of Interest.

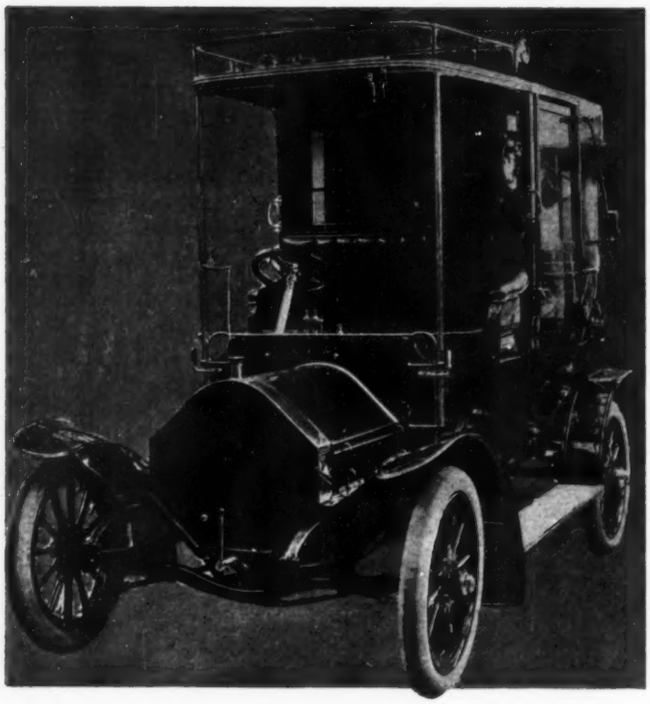
In the taxicab field, the French lead in workmanship and the British appear to have the advance in originality. Darracq, Renault and Unic each present a type of cab excellent in workmanship, but which cannot be considered as other than a reduction of the touring models. The new Renault has three-quarter elliptic springs in the rear, but otherwise is similar to those in use in New York. One improvement has been made, and this applies equally to all foreign taxicabs, by the cutting away of the driver's double seat and utilizing the space gained for carrying baggage. On the Fiat, additional width is obtained by a leaf folding over the running board. Suitable hangers and a broad strap allow of attaching the trunk in position on the driver's left hand.

Among the British makers there is a strong tendency to get away from the touring car standards and build the taxicabs with the engine forward, but under the driver's seat. A very good example of this is shown in the new Austin cab, in which the four-cylinder engine in one casting is immediately under the driver's seat, the pedal connections being under the foot-boards and the gasoline tank on the dash. For all ordinary purposes, the engine can easily be reached through side doors, or can be fully accessible by taking down the seat. This disposition of the power plant brings the gear box right under the body of the cab, necessitating the lifting out of the floor boards before it can be reached. The driver's seat is centered and rather higher than usual, owing to it being above the engine. For cab work, the pronounced tendency is toward single ignition by high tension magneto, thermo-syphon water circulation and small compact engines in one casting; in these features the British designers are in harmony with those of the Continent, and it is quite evident that they have been following closely along very similar lines to those adopted by their French and German competitors in the same field of endeavor.

On the Lotis car was employed a 12-18-horsepower two-cylinder "V" engine, also under the driver's feet, with valves, carbureter and ignition occupying the angle formed by the two cylinders. So far as compactness is concerned, the arrangement is an excellent one, the removal of the floor boards uncovering the entire engine, making every part as accessible as it would be on a vertical type. On this car the use of planetary trans-



One of the Latent Types of British Auto Fire Engines.

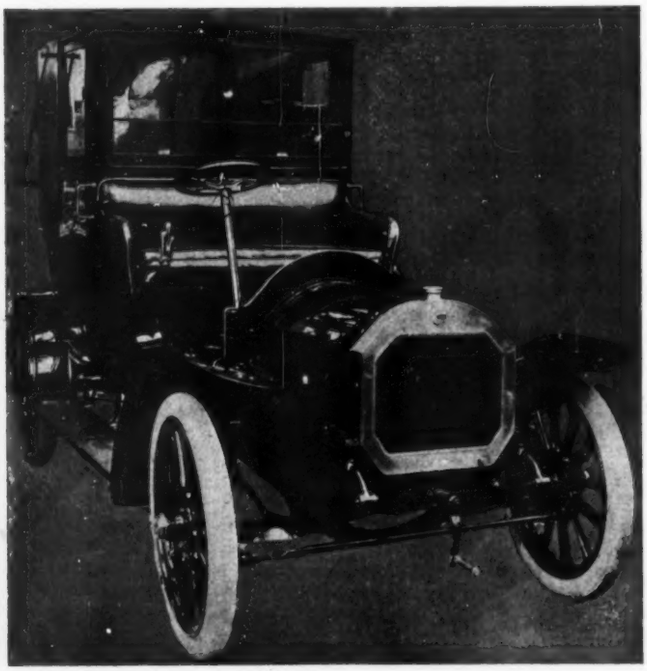


The Taxicab as Exemplified in the Beeston-Humber.

mission and spur gear differential gave a smack of Americanism, European designers as a rule adopting sliding gear transmission, even for the smallest powers.

Broughams for Commercial Travelers.

A side issue of the taxicab business is the construction of commercial travelers' broughams. Mechanically, this type of vehicle is identical with the taxicab, but in bodywork there is considerable difference. Thus, on the De Dion stand was shown one of these vehicles with a single cylinder ten-horsepower engine and closed body, with only one inside seat, the remaining place being occupied by a series of drawers, cupboards and trays. As English commercial travelers have to operate over big but closely populated areas, in which both trains and street



Unic Taxicab, Another Newcomer at Olympia Show.

cars can be of little service, an economical vehicle of this type should have an immense success.

In the lightest type of delivery vehicles there was a surprising scarcity, in view of the fact that English retail trade is still largely held by small and medium-sized firms having quick deliveries to make. In this class the only vehicle which attracted attention was the Royal, with the entire power plant over the rear axle, leaving nine-tenths of the wheelbase free for bodywork. Single-cylinder engine, gear box and drive were all lodged transversely in the rear of the frame, as accessible when the seat was removed as if on a shop bench; the only part in connection with the engine which was carried forward was the radiator under the front end of the body. Engine control was exclusively by variable exhaust lift.

Delivery by Motor Vehicles Is Booming in England.

For loads of from one to five tons, and still higher, by the use of steam tractors, there is a display at Olympia which proves conclusively that the British merchant is desirous of something more efficient than horse delivery service. The interesting feature about the entire exhibit is that commercial motor manufacturers do not show a chassis only, but series of vehicles completely fitted for different classes of trade. To the business man, the feature is an important one, for, though he is interested in good mechanical construction, he is equally concerned about load capacity, carrying surface and convenient handling. Practically every branch of trade is represented, in many

Auxiliary Railway Auto of Heavy Carrying Capacity.

cases vehicles which have been in use with well-known metropolitan houses being shown loaded up for daily work.

From one to three tons gasoline holds its own, steam being in a decided minority, and electric transmission very feebly represented. Electric trucks are entirely absent; indeed, the only vehicle in the exhibition obtaining its power from storage batteries is an electric 'bus, representing a line recently put in operation in London. For three-ton loads and above, steam is a serious rival of gasoline, and for the heaviest types of traction, as, for instance, breweries and the building trades, is in a leading position.

Engine design for trucks follows well defined lines in general principles with considerable diversity in details. Excepting the American Frayer-Miller, there are no air-cooled engines, and but few examples of kerosene or alcohol-driven motors. Four-cylinder water-cooled vertical engines, either forward under a bonnet or below the driver's seat, are the standard type. It is in transmission, and especially in final drive, that diversity of design is apparent. Sliding gear, a countershaft and side chains, as in heavy touring car practice, hardly occupies first position in the commercial field. Parenthetically, it may be mentioned that where this type of drive is employed chain cases are always fitted. Cardan shaft, with final drive through rear live axle, strengthened for the heavier work it has to perform, is prominent for the medium weight truck, while worm drive is noted in many cases. Internal spur-geared final drive was noted in a number of cases on the more powerful units.

The commercial steam automobile, being really a development of the traction engine, the construction of which was carried on long before Britain was freed from the red flag law, it was natural that a nation that has always led in steam engine work should turn to the tractor for heavy road work.

Automobiles Compete and Co-operate with Railroads.

For country haulage, for use by market gardeners, millers, brewers, etc., the steam tractor, carrying a load of three, five or

Component Parts of New Cushion Tire for Trucks.

six tons, and capable of taking up to ten tons, by means of trailers, has won a strong position in England. A large number of the manufacturers of these vehicles hail from the coal, iron and woolen manufacturing districts of the North, where steam engineering has always been well developed, and where heavy traction in connection with the varied industries is common. Under the Motor Car Acts, these vehicles are allowed to run at a speed of eight miles an hour with steel tires, and twelve miles an hour with rubber tires. Especially in the Northern manufacturing districts they are now being extensively used, not only as an auxiliary of the railroad, but competitively for journeys of less than forty miles in length.

Owing to their use with and without trailers, and at different legal speeds, provision is made on many of the steam tractors for the convenient changing of road wheels, steel bandages being employed for country work in summer, rubber for town service without trailer, and timber-faced wheels over greasy or frozen roads. A good type of changeable wheel was noticed on a Sentinel steamer, the fixed wheel being one shaped and the dismountable part being shaped to fit over it, attachment being by lugs on the dismountable rim to take bolts passing through holes on a fixed felloe.

A very convenient type of gasoline tank filler was seen on an Arrol-Johnston 'bus chassis. The tank, which was under pressure at the rear, had a projecting pocket 4 inches in diameter by 10 inches deep, fitted with a bucket strainer. Gasoline could thus be poured in without the use of a funnel, and should any of it be spilled there was no danger of it running over the woodwork of the car. With the increase of motor 'buses and taxicabs in the city of London, special police regulations have been brought out to protect against fire, one of them being the carrying of a fire extinguisher on each vehicle.

Payment on Results Is Now Practiced.

Though not a very common practice, it was learned in conversation with exhibitors that several firms supply their vehicles to business houses at a fixed monthly rental covering all costs. The manufacturer undertakes to have the vehicle at the disposal of the customer, in charge of one of his own drivers, for a certain number of hours per day, and to keep it in working condition on the terms stipulated. Though the arrangement is one of limited application, the fact that it is being entered into by reliable firms is conclusive proof of the strong position that the commercial vehicle has attained here.

A new type of cushion tire displayed in the well-fitted accessory section consisted of lengths of rubber with projecting rubber studs forced into a perforated steel rim, so that the studs will project. The bases of the air spaces are closed by the insertion of steel dives or washers, some of which are tapped to take the screw ends of bolts. The cushion tire thus formed is forced over the felloe of the wheel, a few bolts being passed through the felloe and binding rim into the tapped washers to make all secure.

REPAIRING A CRACKED CYLINDER JACKET.

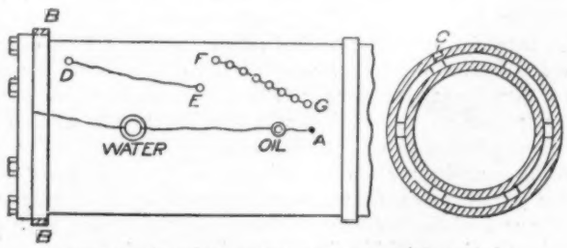
The accompanying figure shows a cylinder which has been cracked by frost, writes T. W. Holloway in *The Engineer*. Making good such a cylinder jacket may appear to be a very difficult job at first sight, but upon second consideration it will be apparent that there are a number of different ways in which it may be effectively repaired with few facilities. First drill a 1-4-inch hole at the end of the crack shown at *A*, to prevent it from extending further, then shrink a steel or iron band on the end of the cylinder as shown at *B*. Then take a chisel about 3-16 to 1-4 inch wide and cut a groove along the line of the crack, making the groove widest at the bottom, as shown at *C*. Next secure a piece of 1-4-inch copper wire which has been well annealed and hammer it tightly into the groove. By careful calking, a crack of this kind can be made perfectly tight. The copper wire can readily be annealed by heating it and then cooling it suddenly by plunging it into water.

If the crack extends only a short distance as *D E*, it is not necessary to shrink a band on the jacket, but a hole can be drilled at each end of the crack and the dovetailed groove cut and the copper wire hammered in and calked as previously explained.

Sometimes a short crack is repaired by drilling a series of 1-8 or 3-16-inch holes as close together as practicable for the entire length of the crack, the first and last holes being at the extreme end of the crack, as shown at *F G*. The holes are then tapped out and cast iron or metal plugs, which are sometimes made for the purpose, are screwed into the holes and cut off even with the surface of the jacket. The job is then completed by rusting in with sal ammoniac.

A very small crack is sometimes rusted up with a saturated solution of sal ammoniac which is poured into the jacket. The solution is then forced into the crack by putting a pressure on the solution. This is sometimes done by means of a tire pump or bicycle pump.

Another method of repairing a short crack consists in applying an iron plate about 1-8 inch thick. Before putting on the plate drill a small hole at each end of the crack, then cut a V-shaped groove along the crack from end to end. Then



Cracked Cylinder Jacket and Suggested Repair.

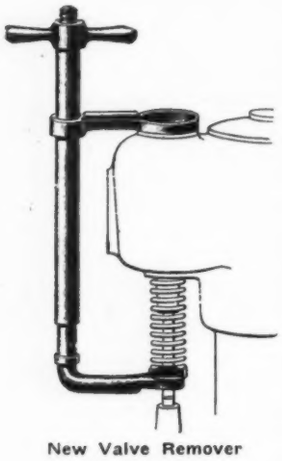
in the groove put a packing of thin asbestos wick soaked in white lead paste, after which a packing of sheet asbestos the size of the plate and dipped in water is placed over the surface to be covered by the plate. The plate is put on with small screws (about 1-4 inch). The screws should be about 1 inch apart and about 1 inch on each side of the crack. If the jacket is so thin that it is necessary to drill through, then the screw heads should be packed with hemp or asbestos soaked in white lead paste.

SMALL INVENTORS MAKE ANNUAL SHOWING

By W. F. BRADLEY.

PARIS, April 9.—Original and useful ideas of value to the automobile industry are as capable of being produced by humble workers as by persons in outstanding positions, declared a Paris newspaper, and to encourage the introduction of such works it formed a small inventors' exhibition to be held annually.

The fourth event, though more pretentiously installed than its predecessors, is hardly as strong in inventive value, and when the patent collar button, fountain pens, and other automobile novelties have been removed, there is only a small selection.



New Valve Remover

To prevent a light-fingered gentleman cranking up a car and driving away with it while the owner is temporarily absent has more than once been the object of a competition in France. One invention of this nature shown at the exhibition consists in attaching a locking cage to one of the cross members or side frame and passing through it a squared section of one of the brake connections. When the brake is put hard on a combination keyway on the squared section corresponds with a combination on the locking cage, allowing a pin to be dropped through and turned round so that it cannot be withdrawn unless the combination is known. The principle is one that has been applied with a considerable amount of success to keyless locks. A marked collar above the locking cage allows of several combinations being made.

Allowing an automobile to smoke is an offense in most French towns. To keep drivers out of the hands of the police, therefore, an inventor runs the lubricating oil into a float chamber similar in principle to that of a carbureter. A needle adjustment allows of regulating the height of the float. Thus, only a determined amount of oil can pass through feed to engine.

Two Inventors' Ideas of Mechanical Self Starters.

Mechanical self starters were but two in number. On one a coil spring mechanically wound up by the motor, was contained within a metal casing mounted in the usual position of the starting handle. By the release of a lever on the dashboard, the internal spring was disconnected, allowing the box to revolve rapidly on its shaft and at the same time engage with the forward extension of the crankshaft, thus rapidly turning over the motor. When the engine started up it would overrun the apparatus, then rewind it ready for future use. Owing to the absence of competent attendants, it was impossible to see what device had been adopted to obtain rewinding.

In the second invention a small aluminum case in front of the engine provided two fingers to engage with a steel pin traversing the end of the crankshaft. Normally the fingers were contained on a sleeve within the case and were only brought out to engage with the crankshaft on the drawing over of a side lever, which also, by a reciprocating motion, caused the sleeve and fingers to revolve together, carrying with them the engine. When the motor overran the starter, the fingers only being held out by coil springs were pushed back into their sleeve until withdrawn by placing the lever in neutral position.

Valve removal is simplified by an instrument known as the Palita, which fits one arm over the compression cock or the base of the plug and inserts a lower one with forked end under the base of the valve spring. A few turns of a screw and the lower arm is raised and the valve spring compressed. The device is a simple one, but is obviously limited to use on an engine with valves in pockets.

A radiator without radiating tubes was formed by a tank divided by horizontal divisions into three distinct compartments. In the top one was contained the hot water coming from the engine; the center one was an air tank, and the lower one received the cooled water by means of a couple of connecting pipes. By means of an air pump driven off the engine shaft by belt and pulley, a strong current of air was sent into the central chamber and through a serpentining pipe passing through the hot water compartment and outletting at the head of the tank.

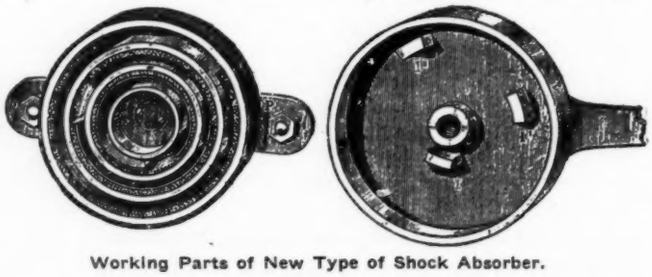
An air-cooled spark plug sounds anamalous, yet this is what was shown on one stand. The porcelain was baked with a number of holes passing down from the head and coming out immediately above the metal cup of the plug. By thus exposing a greater surface to the air, heat would be more readily carried off and less risk incurred of cracked porcelain.

An extensible pulley for belt transmission on light cars consisted of two pairs of metallic discs mounted on separate shafts, one of each being fixed, the other being keyed so as to give a slight lateral movement. On the inner face of each disc was an extensible pulley formed by six metallic sections, each one of which was connected by an arm passing through a slot in the disc to a sleeve on the pulley shaft. Thus, as the sleeve was pulled towards the disc the segments forming the pulley would be moved farther towards the circumference, forming a larger but broken pulley.

Two Attempts to Improve Heavy Road Wheels.

Though patent road wheels have always been an enticing field for inventors, only two were shown at the exhibition. A solid rubber tire was shod with a series of metal plates or shoes, each one being held by a pin passing through rubber and felloe so as to allow a slight pivoting movement. Each bolt was threaded to allow of regulating the normal pressure on the rubber bandage. Instead of the rubber coming in contact with the road, the chain of metal shoes took the road wear and by their pivoting arrangement allowed compression and expansion of bandage.

A dismountable, extensible road wheel for commercial vehicles, providing for changing of rims, consisted of a forged steel hub with fixed collar, on which were mounted, in the form of a double cone, tangential wooden spokes. Each spoke lodged in a suitable assembling plate on the hub, and in a steel socket on the inner face of the felloe. By screwing up at the hub the split felloe was expanded until it bound tightly the steel rim. The hub cap acted as a locking nut and a double wedge inserted in the opening on the felloe prevented further traction.



Working Parts of New Type of Shock Absorber.

A very simple type of shock absorber was formed by a circular metallic case containing three projecting rings, one within the other, each one fitted with a leather-faced ring of spring steel. Three projecting studs on the cover of the case engaged progressively between the spring and the crown, thus giving three increasing ranges of compression and resistance as the cover revolves. A pivoting connection linked up the arm of the shock absorber with the spring seating in the usual manner.

LETTERS INTERESTING AND INSTRUCTIVE

ABOUT TESTING THE LUBRICATING OILS.

Editor THE AUTOMOBILE:

[1,307.]—Is there any test by which a good lubricating oil can be differentiated from a bad one, without actually trying them all on my machine? Is there anything in this "Color Test for Carbon" that I have seen advertised? It is claimed that the light-colored oils contain less carbon than dark-colored oils. A. RAFELSON.

New York City.

The chief essentials of a good lubricating oil are freedom from acid, and, where intended to be used in the motor itself, a sufficiently high flash point. To test oil for the first quality, take a piece of bright machinery steel and a short strip of cotton wicking. Soak the latter in the oil to be tested and wrap it around the bright metal. Place it where the sun will shine on it and allow it to remain there for some days. If the oil undergoing the test is absolutely free from acid, there will be no indication of etching on the steel, no matter how long the test may be extended, but even a comparatively small percentage will make its presence known at the end of a week or so.

In order to ascertain the flash point of an oil, heat a sample of it over a Bunsen burner, or on a gas stove, placing a thermometer in it so that the bulb does not come in contact with the wall, or bottom, of the containing vessel. When the oil begins to vaporize, take a lighted taper and pass it back and forth through the vapor. When its flash point is reached, the vapor will ignite in short blue flashes, but it will not continue to burn, nor will the oil itself take fire. The temperature at which this occurs is its flash point, and for automobile cylinder oil it should be quite high. We have never had any experience with the so-called "color test."

ANOTHER WAY OF REPAIRING A JACKET.

Editor THE AUTOMOBILE:

[1,308.]—Being a subscriber to "The Automobile," I write to ask how to repair the water jacket on a gasoline engine cylinder having a portion broken out. I have been told there is a way they are repaired with a piece of copper, without using any bolts or clamps. G. I. THEW.

Osseo, Wis.

The method you refer to is known as "calking," and consists of filling the opening in much the same manner as a seam in a ship is calked. Take a piece of soft copper, preferably copper wire, slightly larger than the crack to be closed, and force it into the latter. The idea is to fill the opening as closely as the original material did, and, as soft copper is very ductile, it may be forced into intimate contact with every variation of the surfaces of the fissure. The opening should be cleaned out first, and, if possible, its interior made slightly larger than at the surface with a file, thus permitting of a rivet fastening, the amount of copper in the crack being greater than that at the opening. A file, hammer and cold chisel are about the only tools required, and as the jacket is not subjected to much pressure, it is not difficult to make a joint that will not leak.

SOLDER AND FLUX FOR ALUMINUM.

Editor THE AUTOMOBILE:

[1,309.]—Please advise me if there is anything for immediate use in the shape of solder for aluminum ware, or if there is a flux that can be used with common solder for this purpose? Will you please let me know if I can obtain this anywhere?

West Liberty, Ia. LOUIS K. NICHOLS.

There are numerous formulæ for solder and fluxes to be used on aluminum given in various works, but usually they call for the materials not readily procurable in small places, and the method of preparing them is not always possible to the worker with average facilities, so that you will find it much better to buy solder of this kind, which is now on the market. You will find the announcements of manufacturers of aluminum solder in our advertising columns.

IS CAST STEEL A GOOD AXLE MATERIAL?

Editor THE AUTOMOBILE:

[1,310.]—Will you please let me know whether cast steel can be used for the front axles of an automobile, the axles to be cast hollow? Also, whether any manufacturer is at present using cast steel for that purpose. O. M. BOSART.

Indianapolis, Ind.

We hardly think it is a particularly suitable material, whether cast hollow or solid, and do not believe that any American manufacturers are putting out cars with cast-steel front axles. However, as the tensile strength of good cast steel will run as high as 50,000 pounds to the square inch, with an elastic limit of 30,000 pounds, it might do for low-priced and low-powered cars. These are not maximum figures by any means, as cast steel has been produced with a tensile strength as high as 84,000 pounds, and an elongation of 15.6 per cent. It seems, however, that silicon is a requisite to making successful steel castings, and as one of the prime requirements of an automobile axle is "shock ability," or capacity to resist dynamic stresses, great care would have to be taken to keep this element, as well as the phosphorus, as low as possible in order to avoid brittleness. We have heard tales to the effect that motors have been discovered with cast-iron connecting rods, so it is quite possible that cast-steel axles have been employed. Steel castings have been very largely used for heavy marine work. If any of our readers can throw any more light on the subject, we should be pleased to hear from them.

LOOK FOR AN INTERMITTENT SHORT-CIRCUIT.

Editor THE AUTOMOBILE:

[1,311.]—Should the coil vibrate when the terminal is disconnected from the spark plug? On my Reo runabout, when the engine is turned over with the terminal disconnected, the coil vibrates. I can find nothing wrong with the wires. By adjusting the timer so as not to have any vibration with the terminal disconnected, on connecting the terminal without readjusting the timer, there is no spark. The engine seems to run as well as when I first got it, but I do not know whether the ignition system acted in this way originally, or not. W. E. SHARKEY.

Middletown, O.

Judging from the description of the trouble given, there would appear to be an intermittant short-circuit in the timer. That is, it only occurs when the latter gets in a certain position. There may be sufficient strain on the wire leading from the timer to the plug to prevent its occurrence when the two are connected up, and taking the terminal from the plug would relieve this and allow it to make contact. This seems to be the case, in view of the fact that you state the wiring to be in good order throughout. No ignition system should be in this condition. The coil should only vibrate when contact is made at the timer as intended.

ABOUT IMPROVING AN OLD MODEL CAR.

Editor THE AUTOMOBILE:

[1,312.]—Will you kindly give me some advice as to what to do with an automobile? I have a Model A Cadillac, single-cylinder, 10-horsepower car. The compression of the motor is not good. There are three piston rings, and I put on two new rings, the middle one being allowed to remain as it did not appear to be much worn. I noticed that the grooves in the piston were more worn than the rings. The new rings made the compression a little better, but not what it should be. Should I have put on three new rings? Is there anything I can put in the cylinder to improve the compression, yet not interfere with the spark plugs? I use grade A Mobiloil. Is that right for such a motor? I also have trouble with the motor popping some times, when starting. It generally runs all right on low speed, but when I throw the lever into the high speed, the motor starts popping as though the spark advance lever was advanced too much. I am sure the spark is not set too early. I also have trouble with the clutch disk slipping, and am compelled to use rosin, as the leather on the disk becomes smooth. Is that right, or do you know of something

better? The motor makes considerable noise when running in slow speed; apparently in the transmission gear, though an examination showed it to be all right. R. H. HARRINGTON.

Newcastle, Del.

In replacing the piston rings, three new rings should have been put on. The fact that the grooves show wear is evidence that the motor has been run for a long while after the piston rings had lost their effectiveness. If the use of three new compression rings does not restore matters almost to their normal condition, probably a new piston will be the only remedy. Any other method of increasing the compression could only be a makeshift—that is, such expedients as placing an iron plate on the head of the piston and the like. Examination of the piston may show it to be possible to turn new grooves in it, requiring a slightly wider piston ring, in consequence, and, next to a new piston itself, this is doubtless your best remedy.

Most refiners recommend certain of their brands for use on certain makes and models of cars, and you will seldom go wrong in following their advice. We cannot state definitely whether the brand of oil in question is the best for your car, and, except by making experiments, the only way of finding this out is to apply to the builder of the car. Popping in the carbureter is usually due to a weak mixture which continues burning in the cylinder throughout the exhaust stroke and until the inlet reopens, the escape of the gases still under pressure being responsible for the noise.

We do not find your statement, "popping as though the spark advance lever was advanced too much," entirely clear. Do you mean an actual popping, *i.e.*, like a slight explosion of gas in the open air, or a knock? It would appear to be the latter, from your description, especially when taken in connection with the condition of the other parts of the motor. This would result from a loose big-end, or wrist-pin, bearing, and always makes itself manifest when the load is applied. The fact that it runs fairly well at all times is merely evidence that it is being run under conditions sufficiently favorable to call for but a fraction of the motor's power to propel the car. The noise from the change speed gear is only an indication of its worn condition. The planetary type is far from being noiseless, even at its best, when run on the low speed. There is no remedy that we know of, except a new gear set, which would be an expensive repair. Filling the gearcase with "dope," or heavy grease, may suffice to stifle the noise to a certain extent, but it imposes an added resistance on the gear, and is usually not recommended by manufacturers, though very generally practised by repairmen. Probably the high-speed clutch may need adjustment, bringing its faces closer together, or a new leather facing, or both. Soaking the new leather disc in neatsfoot oil, before applying it, will prevent its drying out and becoming polished, through the lack of proper adjustment is doubtless responsible for the latter, as the leather is only held against the metal with sufficient force to grip when the load is light; the rest of the time it is the same as if it were being pushed against a polishing wheel.

BALANCING A TWO-CYLINDER ENGINE.

Editor THE AUTOMOBILE:

[1,313.]—Will you please inform me if my four-horsepower, two-cylinder engine should be balanced? The piston, wristpin and connecting rod weigh 10 pounds. Would it be just as well to bore four 2-inch holes through the balance wheel to take out 10 pounds? The balance wheel is 3 inches thick. Will the engine run any better if I balance it this way, or is it just as well to let it be the way it is? H. E. COVILL.

New Bedford, Mass.

By all means, let the engine remain as it is, as the expedient you mention would hardly tend to improve its running any. It is to be presumed that the designer of the engine provided for balancing as well as could be done with the particular type that it happens to be, and there is not only nothing to be gained by attempting such a makeshift as you propose, but it would, in all probability, end by ruining the engine. There certainly does not appear to be anything to be gained by such an expedient.

UNIQUE EXPERIENCE WITH A FRANKLIN.

Editor THE AUTOMOBILE:

[1,314.]—An experience that I had recently in driving my Franklin may be of interest to your readers, as constituting a striking illustration of what an automobile will sometimes go through without suffering anything more than merely nominal damage. I was running over a piece of road that had just been repaired, and was very rough. While going at a pretty good pace my hat blew off, and I made a grab for it instinctively. Just as I did so the front wheel struck a boulder and the right side pair of wheels went into a ditch about 18 inches deep. At the same time a small boy ran out in the road directly in the path of the machine. I make a quick swerve to escape the boy, but as the right side of the car was 18 inches lower than the left, the whole car "turned turtle."

Fortunately for me, I landed on my feet and escaped without so much as a scratch. The engine continued to run undisturbed until I crawled under the car and opened the switch. With the assistance of three boys, ranging from 12 to 15 years old, I righted the car, picked up the cushions and tools, straightened the steering gear a bit, and ran the machine home. The only damage to the car was the bending of the hood, mudguards and the brass spokes of the steering wheel. A few hours' work remedied things.

Dania, Fla. JOHN W. MULLIKIN.

VALUABLE HINTS FOR FORD OWNERS.

Editor THE AUTOMOBILE:

[1,315.]—Referring to your column "Letters Interesting and Instructive" and to the letter of F. R. Ziegler (No. 1,217), in your March 12 issue, and to No. 1,277, in your issue of March 26, regarding trouble which these gentlemen have experienced with Ford runabouts. The writer had the same difficulty, and the local agent for the Ford assisted me. If the following is of any benefit to these gentlemen, it may be worthy of space in your interesting columns.

The gasoline supply pipe runs near the exhaust pipe for several inches in front of the gasoline tank, in the Ford runabout. After the engine has run for some time the heat from the exhaust pipe becomes sufficient to vaporize the gasoline in the supply pipe before it reaches the carbureter. The trouble is one that is baffling because a short stop is all that is required to permit the cool gasoline from the tank to sufficiently lower the temperature in the small feed pipe to permit liquid gasoline to flow to the carbureter again. Hence, any alteration in the carbureter or ignition or any other part of the car which occupies a few seconds is apparently all that is needed to cause the engine to start again. If these parties will bend the gasoline pipe away from the exhaust pipe and wrap that portion of the exhaust pipe coming nearest the gasoline supply pipe with asbestos, they will probably overcome the difficulty. PAUL A. DINSMOOR.

Lawrence, Kan.

MR. HAZLETON CITES FACTS AGAINST HIS CRITIC.

Editor THE AUTOMOBILE:

[1,316.]—Referring to Mr. Woolston's statement in the March 26 issue, he thinks 25 pounds of water cannot be vaporized with one pound of kerosene. I made experiments at Nevada and San Francisco, Cal., on both coal and crude oil, and in both cases I could vaporize double the water with oil that I could do with coal. I sold the Atlas Engine Company two 700-horsepower Hazelton boilers, with a guarantee to do 12 pounds with one pound of combustible, and putting the water in boilers from a heater that raised the feed water 2 to 12 degrees, with 100 pounds on boiler. I fulfiled my contract. If kerosene is as valuable as the California crude oil, and it should be better, I can vaporize 25 pounds with one pound of oil. I will use kerosene on my first auto, as I expect to run it to Chicago. Later will try coal. M. W. HAZELTON.

Oneonta, N. Y.

A HELPFUL SUGGESTION FOR NUMBER 1,218.

Editor THE AUTOMOBILE:

[1,317.]—Have just read letter No. 1,218, and would suggest that the trouble may be in the timer; that is, it may not make contact at the right time. To-day I had trouble very much like this, and while it was not in the timer itself, I found it in the coil—Splitdorf—the connection between the different units being broken and almost every time I started the motor it would fire back through the carbureter. C. R. HASTINGS.

San Francisco, Cal.

CAMERON ALSO MADE FOR SOUTHERN TREAD.

Editor THE AUTOMOBILE:

[1,318.]—We notice, in one of your late editions, a letter from one of your readers relative to the supplying of a 60-inch tread on cars for use in the South. We wish to state that we supply the 60-inch tread on all of our four models, when specified.

CAMERON CAR COMPANY,

Beverly, Mass. H. W. Doherty.

COMPARE MAINTENANCE WITH OTHER TRANSPORTATION

By H. O. SMITH, Treasurer American Motor Car Manufacturers' Association

WHAT has been done in automobile manufacturing is only a repetition of history as it relates to other commodities which America has been attracted to and has taken up to develop. The American has proven himself capable of quickly grasping the situation and foreseeing the future possibilities.

It would be difficult to fully realize that from so humble a beginning, and with seemingly so little that is practical to build on, an industry would develop in less than ten years to the enormous proportions of the automobile industry to-day. It promises to continue to expand, and, at the present rate, will in a very few years assume such magnitude that it will be equal to our most important and thriving industries.

A few years ago the belief was general that the automobile would not prove a practical conveyance. One basis on which this opinion seemed to be founded was the fact that our roads had not reached the same standard as European roads, and it was not generally believed that even the most able engineers could design and build a road locomotive to be placed in the hands of inexperienced drivers and used successfully on the roads as we find them, and especially when machinery like that of the railway locomotive was not subjected to rigid expert supervision.

A casual observance of the motor cars in use, supported by the figures, shows that the volume of business done in 1907 represents more than $100,000,000. This unquestionably proves that the motor car is, and must have been for some time, taken seriously, and that it is no longer considered a luxury or a fad, but is very properly regarded as a practical, economical and dependable conveyance.

A close observer will note that among the standard makes of cars there have been but few radical changes in the last two or three years. It is safe to say that such changes as may characterize the succeeding years' models for some time will be only in the nature of minor changes or improvements and possible body design. It is quite probable that the foremost products of the day will not be considered *passé* several years hence, and for this reason the purchaser of a motor car will not necessarily feel that it is important to sacrifice a car which has seen but one season's service. It is possible for the casual observer in looking over a motor car to appreciate what the automobile of to-day really represents. It is not only a self-contained power plant, refined to a degree of simplicity which makes it possible for those who are inexperienced in mechanics and the handling of machinery to successfully operate a car, but, in addition, the car represents the carrying conveyance itself.

Compare this for a moment with the locomotive which is seldom permitted to travel 200 miles even in the hands of skilled engineers before it is thoroughly inspected and overhauled, notwithstanding the fact that it has not been forced to encounter irregularities in road surface or excessive grades, all of which evidences the fact that careful thought and research are necessarily behind the designing, developing and producing a satisfactory automobile.

It is necessary that a successful builder of motor cars be an able mechanical engineer, but, more than this, he must also be capable of determining necessary sizes and dimensions, and so designing each part as to make it most efficient in service, and of determining those metals which are least affected by the strains and vibrations. It is necessary that anti-fatigue metals be used throughout to avoid the tendency towards crystallization, and, in addition to all these, he must possess a large experience with the motor cars in actual service to best determine the peculiar requirements of the various parts of a motor car when in actual service. We have not only developed the automobile in this country, but we have developed the engineers. The question is often asked: What is the life of the motor car? It would be quite as appropriate to ask how long the engine in a power plant would last. As a matter of course, in either instance the article must be well designed, of proper proportion representing good workmanship and material, and adapted to the service required of it. These requirements being met, the life of the automobile depends upon the care given it. If it is kept properly lubricated and adjusted (which does not mean dismounting and reassembling frequently), the life should be indefinite, except the occasional refitting of certain bearings and minor parts. With actual records of many cars being from 30,000 to 50,000 miles, and all seemingly in good running condition, it is evident that the life of the automobile is not limited.

The future of the motor car depends entirely upon the way it compares with any other means of transportation: first cost, maintenance, and results considered. It is safe to say that a standard well made car of medium size can be driven an average of 30 miles a day, or 900 miles a month, at a cost for fuel, including oil and gasoline, of from fifteen to twenty-five dollars per month. Records can be produced showing that with reasonable care the cost of maintenance, aside from the items mentioned, mishaps, and tire renewals, is from $25 to $50 a year. Compare these figures, which are not necessarily the most conservative, with any other means of transportation, and the real worth of an automobile can be obtained.

SEE NO IMMEDIATE FUTURE FOR THE ALCOHOL MOTOR

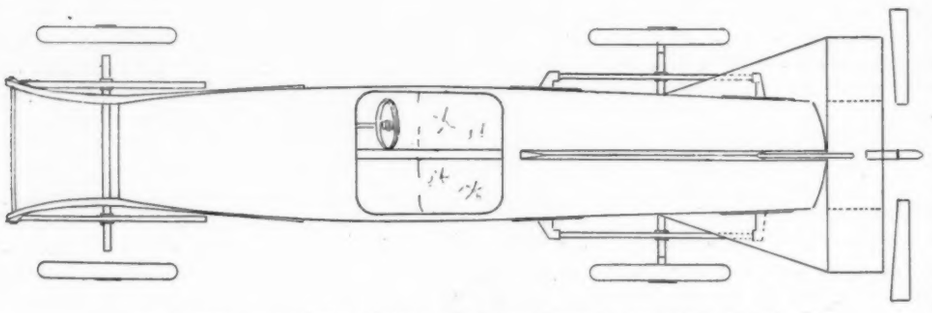
SYRACUSE, N. Y., April 13.—Extensive experiments have been carried on with the alcohol motor in the laboratories at the Franklin auto factory. The results obtained equal the results obtained in France and also the results obtained by Professor Lucks at Columbia University. The Franklin people, however, conclude that the results do not warrant the belief that there will be an immediate demand for the alcohol motor. But the Franklin people do not consider that they have finished the work and are continuing the experiments. Results to date show that even if alcohol and gasoline could be purchased at the same price per gallon, the gasoline motor would be the more economical. In other words, with the two fuels at the same price it would be cheaper to use gasoline. This is because there is a great deal more energy in a given amount of gasoline than there is in a given amount of alcohol, and up to date there is no way known by which the handicap can be overcome.

There is another very serious drawback to the use of alcohol as against the use of gasoline, say the Franklin experts. The motor can use practically any amount and not suffer. In the gasoline motor, the "mixture" must be right or the motor does not work well. If the gasoline is used too freely and the "mixture" becomes too rich, the operator knows it at once by the loss of power, etc. This is not true with alcohol. For example: If the alcohol motor was running at the rate of three miles to one gallon of alcohol and some little change in the adjustment or conditions caused the alcohol to be fed faster, the motor might consume a gallon to a mile and the operator would not know it. Therefore, under all conditions known to-day the Franklin people conclude that there is no immediate future for the alcohol motor, but they do believe that it is of sufficient importance to merit further experimenting with the possibility that the problem can finally be solved.

THE AUTOMOBILE THAT I DREAM OF THESE DAYS*

By HENRI FARMAN.

SOMEBODY asked me the other day if I had completely renounced the automobile, and if I had definitely abandoned the course for the domain of the air. The fact is that the numerous forms of work to which I have to devote myself, the multitudinous and incessant cares which are involved in the construction and surveillance of apparatus, which, it must be admitted, is still in its infancy, have scarcely allowed me time to think of anything else. Flight is a thing so novel, and the sensations that spring from gliding above the surface are so totally different from anything anticipated, that you will readily understand, that any one who has once tried them can hardly think of anything else but a repetition of the experience.

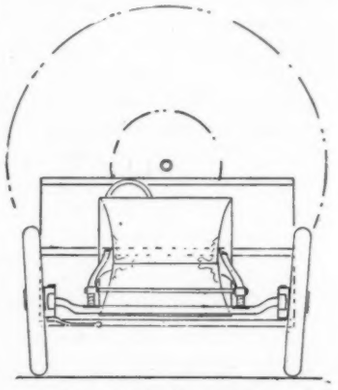


The Wings, Even With Limited Area, Will Decrease the Car's Weight.

But I cannot forget the road course altogether—the scene upon which I made my debut in the world of sport, and which, by a curious coincidence, led me through the very capital of Auvergne, above which we must fly, sooner or later, in order to gain the prize offered—another coincidence—by the generosity of Michelin. I cannot forget that it was in the Paris-Berlin, in the Paris-Vienna, and in the Paris-Madrid, that I acquired the habit of flying that enabled me to maneuver my aeroplane above the drill ground at Issy-les-Molineux. But my already numerous trials have shown me what can be obtained from an aerial propeller. One seldom thinks of the air as a supporting material, and many doubt the assertion that the air is almost as solid as the surface of our roads, when one knows how to make it serve his purposes. However, many interesting experiments have already been made on that subject.

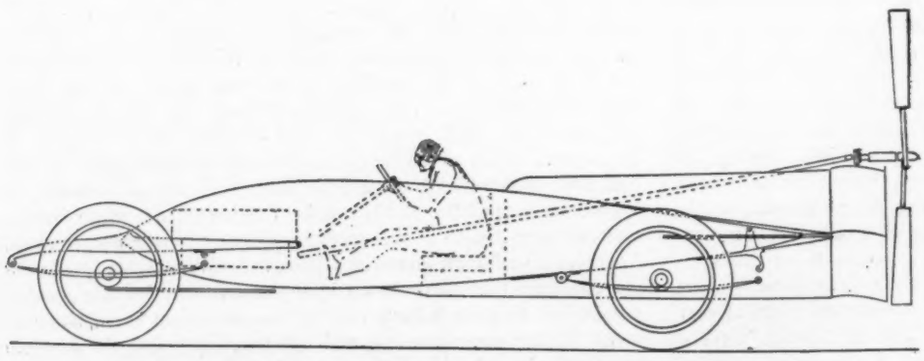
It will be recalled that as early as 1906, Archdeacon experimented with a motorcycle with an aerial propeller placed forward. That machine, with the screw propeller turned by a 6-horsepower motor, was tried out at Acheres. Driven by Anzani, it attained a speed of 79 kilometers 500 meters an hour, a speed practically equal to what it would have been capable of had the power been applied to the rear wheels, although the propeller was completely demolished by an accident. On an automobile, the results will be even better, and particularly on bad ground, for then, with the increasing speed it will frequently happen that the wheels will leave the ground and this friction will be eliminated, thus avoiding a serious waste of power. Since the time in question, screw propellers have been perfected. A propeller easily has an efficiency of 50 per cent., delivering half the power of the motor, while the best automobiles scarcely do better than 75 per cent., counting the power delivered at the rear wheels. But that is not their true rating by any means, as account must be taken of the tremendous losses, due to the slipping of the wheels on the road surface, this being the greatest evil to be contended against in this method of transmitting the power. With a propeller, on the contrary, the transmission is superb, as the effort is constant, while with wheels it is intermittent and jerky.

If, then, I ever return to the road course, it will not be on an ordinary racing car, but one constructed according to the plans which I will outline to you. The car will be composed solely of two axles, the motor, and the screw propeller, the illustrations reproduced here being the result of collaboration with the Voisin brothers. It will have no clutch and no differential. Stripped of all the complications customary on ordinary cars, it will consequently be very light, and should not exceed 400 kilos. With a 50-horsepower motor and a screw propeller 1 meter 80 in diameter, I estimate that it should be capable of at least 150 kilometers an hour. Its form will be very much tapered, in order to diminish the resistance of the air. It will be provided with flat wings, and, even with a reduced area, these wings will be capable, at a speed of 100 kilometers an hour, of relieving the car at least 200 kilos of its weight, so it will be very easy on pneumatics. I have, moreover, a certain criterion to judge by, and that is that my aeroplane, while over the training ground at Issy, is faster than cars of the same power. I thus believe I am right in affirming that my car with its aerial propeller will be faster than a car of any other type, of the same power. Certain it is, that it will be by far the simplest thing on wheels that will have the power to make this speed, and its coming will doubtless make a revolution in racing design.



Area of Aerial Propeller.

But will it ever see the light?

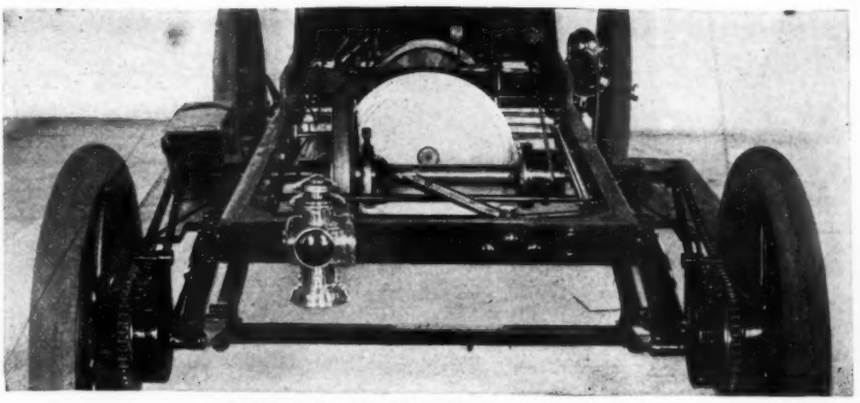


This Car, Weighing About 400 Kilos., Should Make 150 Kilometers per Hour.

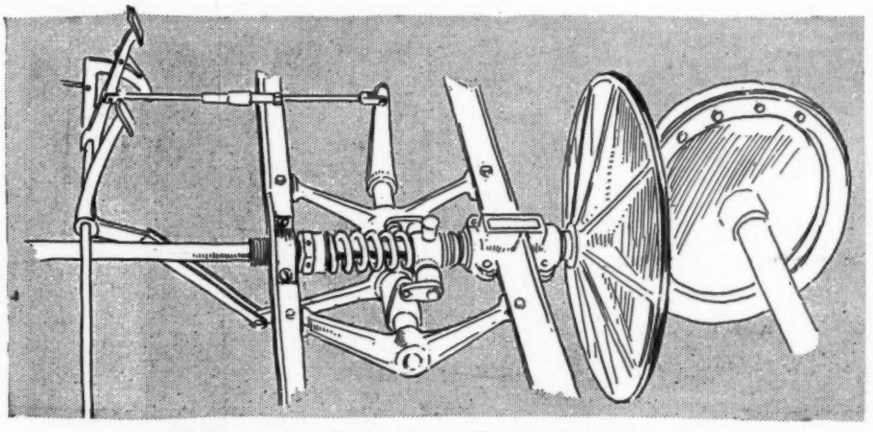
*Translated from *La Vie au Grand Air*, by Charles B. Hayward.

CONCERNING THE EARL.

While the expansion of the motor buggy field in the Middle West was having new converts daily through the steadily increasing numbers of friction-driven cars, a new concern, the Earl Motor Car Company, was locating in Kenosha, Ill., and manufacturing on a medium scale friction-driven cars of the two-cylinder type and employing that conventional disc-and-wheel transmission system, although using new methods of engaging these friction members. The car then marketed was a 16-horsepower design with an opposed motor in front and the transmission located midway between the motor and rear axle, permitting of the use of reasonably short side chains for transmitting to the rear wheel. Since then the company has climbed one round higher in the ladder of automobile manufacture by bringing out a larger 20-horsepower two-cylinder car and a four-cylinder roadster for the present season, the manufacture of which now occupies the major energies of the Kenosha plant.



Rear View of Chassis of Earl Friction Drive Car.



Detailed Outline Sketch of Earl Friction Drive Mechanism.

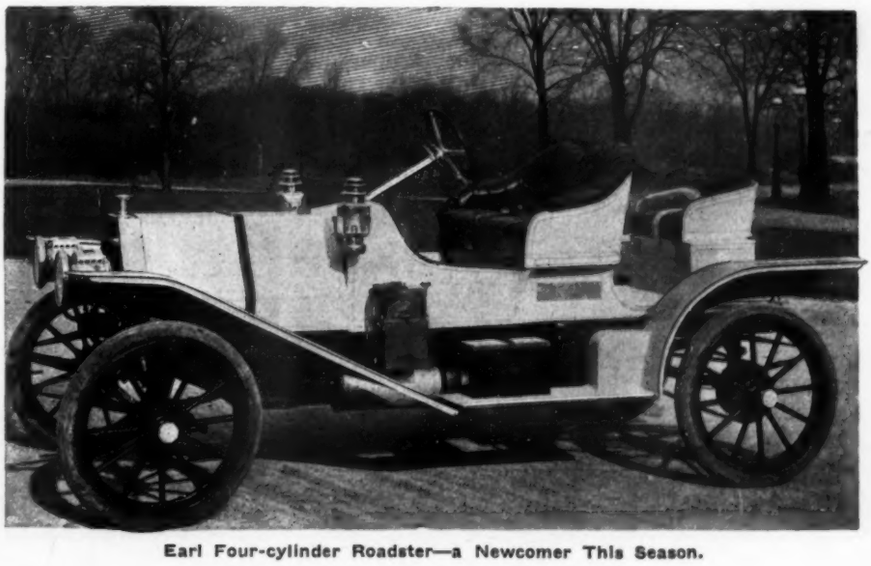
The style of transmission used in the two and four-cylinder cars is alike and central picture illustrates its general design. At the rear face of the flywheel is a universal joint, and a longitudinal driveshaft, which at its forward end is a sliding fit within this joint, carries on its rear end the radially-ribbed friction disc shown in the illustration and which contacts with sliding friction wheel of the regulation type on a rigid cross-shaft. The friction disc with its longitudinal shaft slides endwise for engagement with the friction wheel and disengagement therefrom, but the novelty in connection with this is that a heavy helical spring keeps the disc constantly pressed against the friction wheel, the same as a clutch spring keeps the clutch engaged except when released by the driver by pressure on the clutch pedal. Should this spring, due to any cause, not give sufficient contact between the disc and wheel, pressure on a pedal may be used to augment such engagement. The reader will at once recognize the difference between this friction scheme of constant engagement and that generally used; the general scheme being to keep the disc and wheel separated normally and bring them together by ratchet retained pedal, thereby depending solely on mechanical means for engagement.

In disengaging the disc and wheel, the control, consisting of the ratchet-retained pedal, whose connections are illustrated herewith, is used, and by means of which the disc is locked by the ratchet in its disengaged position, the coil spring at this time being under greater compression. Should, however, the spring not give sufficient engagement then the left pedal is used to assist in forcing the disc against the wheel to increase the pressure.

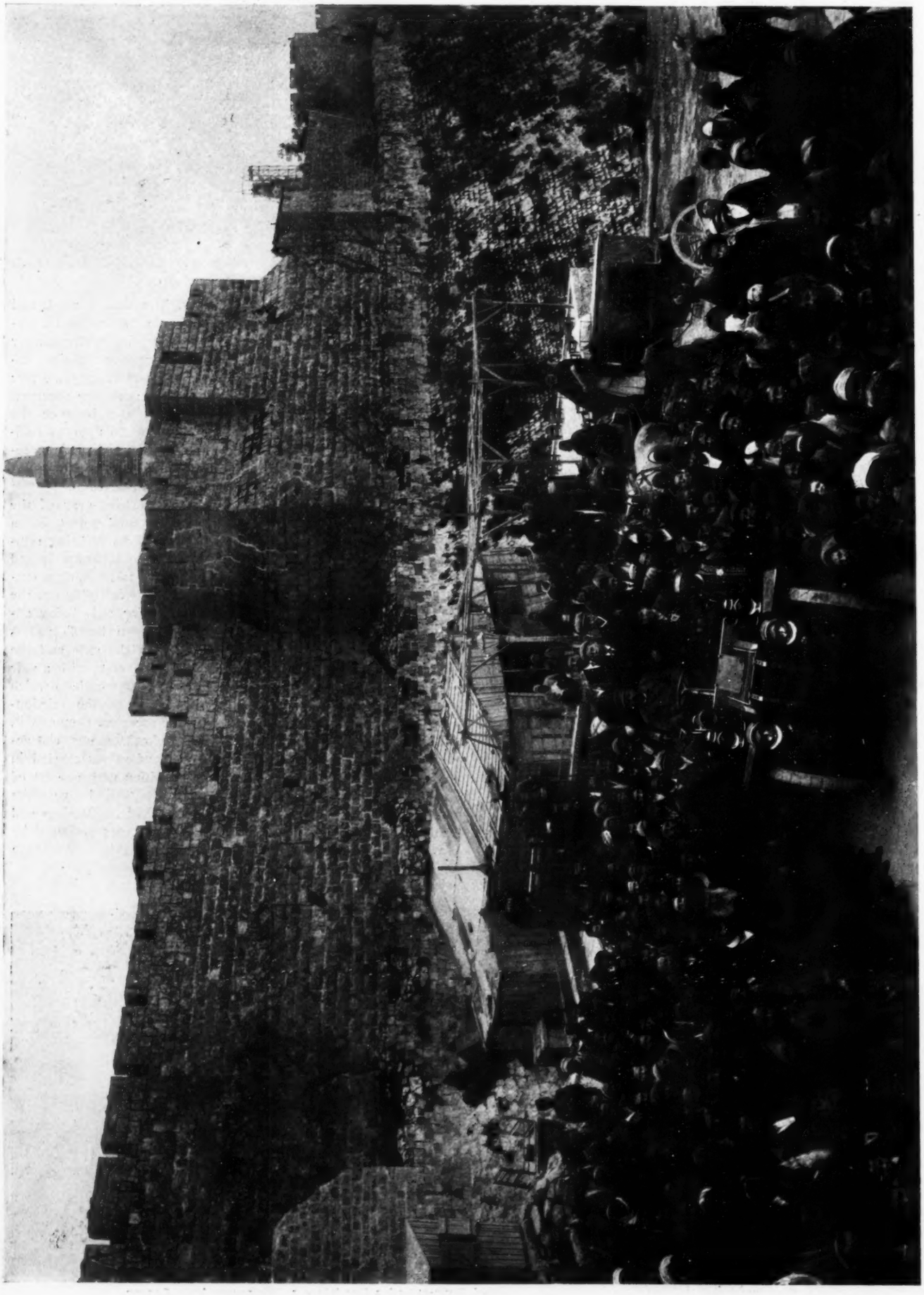
The much talked of slip between the disc and wheel is not looked upon as sufficient excuse for a differential, and consequently fitted to the right end of the cross-shaft is a spur-geared differential.

Conspicuous in the running-gear of the Earl roadster is the employment of a wooden chassis frame, the sills being reinforced by steel plates 3 1-2 inches wide and taken from 3-16-inch stock. Spring suspension throughout is by full elliptics, the driving strain of the rear axle being absorbed by a pair of turn buckle radius rods, extending between the axle and the jackshaft. Braking effort rests with a pair of band brakes on the rear wheel, to which can be added the action of the friction-driven reverse when occasion demands it.

Used in this car is a 22-horsepower Waukesha motor, characterized by 4 by 4-inch cylinders, both sets of valves carried in chambers on the left side, a jump spark ignition with one set of plugs carried, not in the valve caps, but in the angle between the intake and cross valve and the cylinder dome. Cooling and lubrication are patterned after the regulation types endorsed by standard engineering practice, and in fact this is true of the remainder of the car.

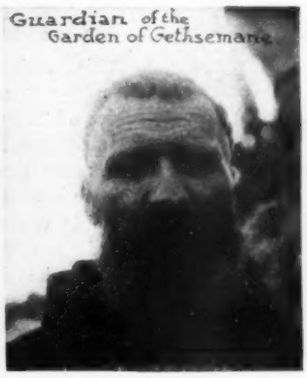


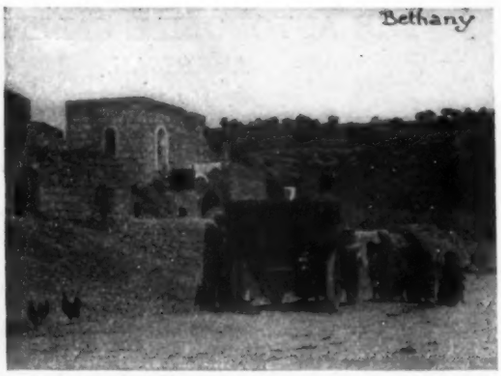
Earl Four-cylinder Roadster—a Newcomer This Season.



The Array of Jerusalem's Denizens that Greeted Mr. and Mrs. Charles J. Glidden, on March 13, on Their Arrival at David's Tower, Jaffa Gate.

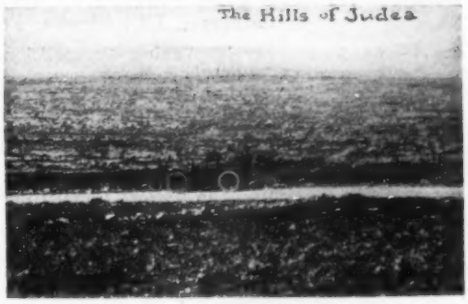
River Jordan.


Guardian of the Garden of Gethsemane.


Bethany.

Syrian School Children in Jerusalem.

Garden of Gethsemane.


The Hills of Judea.

Dead Sea.

THE GLIDDENS IN THE HOLY LAND.

Hitherto the official successors of Mahomet have positively declined to issue firmans permitting an automobile to traverse the Holy Land, and it remained for Globe Girdler Charles J. Glidden to so ingratiate himself into the Sultan's favor that he was the first automobilist to be honored with the official permit. As noted in THE AUTOMOBILE of April 2, Mr. and Mrs. Glidden landed their car at Haifa, going thence to Jaffa and Jerusalem. Later advices state that they have completed the tour of the Holy Land, driving in all a total of 500 miles in that world-famed region.

Their arrival at the Jaffa gate of the Holy City was the signal for much excitement among the natives. A great crowd collected to bid them welcome, and foremost among those to extend greetings were the American Consul, the Hon. T. R. Wallace, and Mrs. Wallace, who, with their young son, are seated in the car with Mr. and Mrs. Glidden, in the photograph on the opposite page. After leaving Jerusalem the tourists proceeded to Hebron, thence to Jericho, and along the River Jordan to the Dead Sea, and returning visited the Mount of Olives, and thence to the port of Haifa, via Nablus.

According to Mr. Glidden a carriage with high clearance is necessary to successfully negotiate the roads of the Holy Land, which are stony and sometimes have muddy grades up to twenty per cent. His total world's tour mileage up to March 19 is 43,367 in thirty-seven countries traveled, and he has been on the road a total of 350 days.

NANTUCKET'S FIGHT TO BE AUTOLESS.

BOSTON, April 11.—The island-county-town of Nantucket, in Massachusetts, which has waged war on the automobile ever since that type of vehicle became sufficiently perfected to venture so far at sea as Nantucket, has scored an important point in its campaign of exclusion. A week ago the island authorities invited the legislative committee on Roads and Bridges to visit the island and look over the possibilities of the use of its narrow, cobble-paved town streets, and its one good piece of State road for automobiles. The committee spent a day or so at the island, and when it returned was so well satisfied with what it saw that it has reported a bill exempting Nantucket from the working of the general automobile law for three months of the year.

For several years Nantucket has tried to exclude automobiles under the general law, but it has not been altogether successful and automobiles have actually invaded the streets held sacred during the summer boarder season to the livery stable surrey. Under the bill reported this week, however, it is provided that the part of the law which permits of review of local regulations by the Highway Commission shall not apply to Nantucket from June 15 to September 15. As this is the only time anybody wants to go to Nantucket the bill amounts to exclusion.

THE AUTOMOBILE CALENDAR.

AMERICAN.

Shows and Meetings.

Apr. 21-23.....—Louisville, Ky., New Coliseum, Automobile Show. Hubert Levy, manager.

June 25-27.....—Detroit, Third Annual Summer Meeting of Society of Automobile Engineers.

January, 1909..—New York City, Madison Square Garden, Ninth Annual National Show of the Association of Licensed Automobile Manufacturers. (Exact date to be announced.)

February, 1909.—Chicago, Coliseum and First Regiment Armory, Eighth Annual National Exhibition, National Association of Automobile Manufacturers. (Exact date to be announced.)

Race Meets, Hill Climbs, Etc.

Apr. 24.....—Briarcliff Trophy Race, Westchester County, N. Y. Robert L. Morrell, chairman.

Apr. 28.....—Norristown, Pa., 125-mile Endurance Run, via Lancaster and Reading, Norristown Automobile Club.

May 4-5.....—Harrisburg-Philadelphia and Return, 300-mile Endurance Run, Motor Club of Harrisburg.

May 15.....—Chicago, Algonquin Hill Climb, Chicago Motor Club.

May 16.....—Hartford, Conn., 200-mile Endurance Run, Automobile Club of Hartford.

May 30.....—Bridgeport, Conn., Sport Hill Climb, Bridgeport Automobile Club.

May 30.....—Wilkes-Barre, Pa., Giant's Despair Hill Climb, Automobile Club of Wilkes-Barre.

May 30.....—San Francisco, Endurance Run under the auspices of the Automobile Dealers' Association.

June 6.....—Worcester, Mass., Dead Horse Hill Climb, Worcester Automobile Club.

June 24-27.....—Chicago, 1,200-mile Reliability Run, Chicago Motor Club.

July 7-8.....—Buffalo, N. Y. National Convention of the American Automobile Association.

July 9.....—Buffalo, N. Y., Start of the Fifth Annual A. A. A. Reliability Touring Contest.

Sept. 5-9.....—San Francisco-Los Angeles Reliability Run, under the auspices of the Automobile Dealers' Association of San Francisco.

Sept. 14.....—Chicago, Annual Economy Run, Chicago Motor Club.

FOREIGN.

Shows.

May 17-31.....—Austria, Budapest Automobile Show.

May 17-June 2..—Moscow, Russia, International Automobile Exposition, Automobile Club of Moscow.

December.....—Paris, Eleventh Annual Salon de l'Automobile, Grand Palais, Automobile Club of France.

Race Meets, Hill Climbs, Etc.

Apr. 25-May 25.—Industrial Vehicle Competition, Automobile Club of France.

May.....—Paris, Competition for Agricultural Automobiles, auspices of "L'Auto." (Date to be announced.)

May 7.....—Sicily, Palermo, Targa Florio Circuit, Voiturette Race, Automobile Club of Italy.

May 11-16.....—Ireland, Irish Reliability Trials.

May 1-31.....—Automobile Taxicab Competition, France, Automobile Club of France.

May 10.....—Sicily, Targa Florio, Automobile Club of Italy.

May 31.....—Russia, St. Petersburg to Moscow Race.

June 1-18.....—Reliability Trials for Pleasure Cars, Automobile Club of Great Britain.

June 14.....—Mount Cenis Hill Climb, for Voiturettes.

June 9-17.....—Touring Competition for the Prince Henry of Prussia Prize, Germany, Imperial Automobile Club.

June 15-19.....—Scotland, Scottish Reliability Trials.

July 6.....—Voiturette Grand Prix, Dieppe Circuit (Automobile Club of France).

July 7.....—Grand Prix of Automobile Club of France, Dieppe Circuit.

July 13-17.....—Ostend, Belgium, International Race Week, Automobile Club of Ostend.

July 20-30.....—Ardennes Circuit Races and Coupe de Liederkerke, Automobile Club of Belgium.

Aug.....—France, Coupe de la Presse, Automobile Club of France. (Exact date to be announced.)

Aug. 29-30.....—France, Mont Ventoux Hill Climb, Vauclusien Automobile Club.

THE FIRST 1908 BLUE BOOK.

This week the Class Journal Company, publishers of THE AUTOMOBILE and MOTOR AGE, bring out the first of the 1908 series of "The Official Automobile Blue Book," carrying forward by a second full year the work first undertaken on broad and permanent lines in the compilation and publication of the one-volume edition of 1906.

While covering practically the same territory as the corresponding 1907 volume, approximately one-half of the entire territory has been written new from personal observations with odometer measurements—a wider sweep of the country than was ever before attempted to cover by this means.

There are 292 separate routes in the book, totaling 19,135 miles. Of the 313 maps, 133 are route maps, principally in the margins of the pages; 137 city maps, with 35 full-page maps. There are, in addition, three double-page maps, whose six pages cover the territory in general from the Hudson River, Long Island Sound and Lake Champlain to the Rhode Island-Massachusetts Coast, the upper Maine border and the Canadian line. By the aid of these maps and the index (both of places and of trunk lines, the latter being a framework by which separate runs are listed consecutively as through routes), a tourist is able to find his way with a convenience and certainty never before approximated, practically throughout New England.

As an example of the thorough character of the present work, it may be cited that one is able to plan a round trip to and from the White Mountains from New York by three different trunk-line routes, complete connections to and from which are easily made by the regular routes of the different sections from practically any point in New England. The highest point reached by the matter compiled new for the 1908 edition is Dixville Notch, N. H., this route skirting the upper Connecticut River Valley to Colebrook, crossing over through Dixville Notch to Errol on the N. H.-Me. border, thence down the Androscoggin Valley to Gorham and the White Mountains.

The important stretch between the White Mountains and Portsmouth was written new from personal observation for the first time, with odometer mileages throughout, and many another stretch that has heretofore been traveled with uncertainty, if not with actual difficulty, has been made plain by this latest edition, the number of whose pages have been increased over 200 to accommodate the additional material.

The Blue books are again brought out under the exclusive official endorsement of the American Automobile Association. The New York State volume is now entirely in press, and will shortly be issued, followed by Volume No. 3, dealing with New Jersey, Pennsylvania, the South, and the West. There is shortly to be an addition of a fourth volume, covering the Middle West, announcement of which will soon be made.

The extension of routes to and from the Middle West evidences both the rapidly broadening field of the Blue books and the growth of touring in that territory. A separate volume, published by the Class Journal Company, is the "Metropolitan Automobile Guide," comprising 74 separate round trips to and from New York and Brooklyn, ignoring the State lines and other divisions that necessarily exist in a work as large as the Blue books.

A striking example of the past and present was accorded Hartford, Conn., voters at the recent city election. It has always been the custom in Hartford, as in other cities, to round up delinquents at the polls, and for this purpose horse-drawn vehicles have been used. This season, however, there was hardly a horse outfit to be seen, and the automobile had things pretty much its own way. Every dealer in the city rented all his spare cars, and these were at a premium. Both candidates made their campaign speeches in autos. One owner of a commercial car fitted up the vehicle with side seats and brought the voters from the factory districts by the dozen or more. Of course, the livery men, that is, those who do not use autos, are sore all through.

REVISED AND COMPREHENSIVE OFFICIAL AUTOMOBILE BLUE BOOK CHART OF AUTOMOBILE LAWS ENFORCED AND IN EFFECT UP TO APRIL

REVISED AND COMPREHENSIVE OFFICIAL AUTOMOBILE BLUE BOOK CHART OF AUTOMOBILE LAWS ENFORCED AND IN EFFECT UP TO APRIL 15, 1908.
When traveling in "exempt" States, automobilists should display home license numbers and tags. When traveling in non-exempt States remove number and tags of home and other States.

	Registration with	Fees	Numbers	Lamps	Non-Residents	Speeds
CONN.	Secretary of State Hartford.	Annual registration of car. Less than 20 H. P., $3.00; 20-30 H. P., $5.00; 30 H. P. up, $10.00. Operator's license (annual) $2.00.	Must be obtained from Secretary of State—$1.00 for set of two	Front and rear lights required	Exempt 10 successive days, but home-State number must be carried	Must not exceed 25 miles per hour, "or at a rate of speed greater than is reasonable and proper"
DEL.	Secretary of State. Dover.	$3 for registration; $2 for driver's license, both annually on January 1st.	5 in. high, front and rear, with year and initials of State.	1 white forward; 1 white rear illuminating number; 1 red rear.	Exempt 10 days a year.	10 m. curves and intersections; 12 m cities and towns; 20 m. elsewhere. Chains prohibited except on dirt roads.
D. C.	The Automobile Board. Washington.	None, but license to operate required	3 in. rear; initials "D. C." 1 in. high.	2 forward at sides, and 1 rear showing red and white.	Exempt 60 days; but non-residents must register with the Automobile Board within 24 hours.	Fire limits, 12 m.; 15 m. parks; 8 m. across streets; 6 m. corners; 4 m. certain designated streets and corners; 20 m. outside fire limits, 12 m. meeting and passing vehicles.
ILLINOIS.	Secretary of State. Springfield.	$2.00; professional chauffeur $1.00	Front and rear 4 in. high; letters "ILL" 1 in. high, black on white ground.	2 in front with Nos thereon 1 in. high; 1 red rear.	Exempt so far as State is concerned.	15 m. outskirts; 10 m built-up section; 6 m. corners and crossings; 20 m elsewhere.
INDIANA	Secretary of State. Indianapolis.	$1.00.	4 in. front and rear, 1st 3 letters of State, 4 in. high; white on black.	"Shall carry lighted lamps."	Exempt.	8 m. closely built portions, 15 m. other portions; 20 m. outside.
KY.	No State provision. Local authorities should be consulted.	No State provision.	No State provision.	1 white front, 1 red rear.	Exempt so far as State is concerned.	6 m. crossings, bridges, curves and descents; 15 m. elsewhere
MAINE	Secretary of State. Augusta.	$2.00 registration; $2.00 license. Both indefinitely	Supplied by State.	1, location and color not specified.	Exempt	8 m. cities, towns, etc. 15 m elsewhere; prohibited certain roads, Bluefield, Camden, Mt Desert, Readfield, Eden, Castine.
MD	Secretary of State, Annapolis.	Owners $3.00; chauffeurs $2.00. Perpetual; owner needs no driving license.	3 in. high front and rear, white on black background, ½ in. wide. Remove all other tags.	2 white front, with number 2 in. high; 1 red rear.	Not exempt	6 m. sharp curves, intersections of prominent cross-roads; built up portion of city; elsewhere, 12 m.
MASS	Highway Commission. Boston	$5.00 registration, annually. $2.00 private operating license, perpetual. $2.00 pro. chauffeur's license, good year from date.	Front and rear. Plates furnished free.	1 white each side front, containing numbers 1 in. high.	Exempt 7 successive days	12 m. cities; 20 m. country; 8 m. curves and intersections.
MICH	Secretary of State. Lansing	$1.00; 50c. renewal. Same for chauffeur. Both good year from date.	Front and rear, 3 in. high, with State abbreviation 1 in. high; black on white or vice versa.	2 white front, 1 red rear	Exempt if home State grants reciprocity	8 m. business portions, 15 m. other portions; 25 m. outside.
MO.	Secretary of State. Jefferson City.	$5.00 owner; $2.00 chauffeur..	Front and rear 3 in, with "Mo." 1½ in.; white on black.	2 white front; 1 red rear.	Exempt.	Business portion cities or villages 8 m.; elsewhere 15 m. Corners and crossings 6 m:
N. B. Canada.	Secretary of Public Works Fredericton	Registration $5.00; renewal $1.00; chauffeur $2.00.	Tag in rear, numbers 3 in. high, black on white. Letters "N B." 1 in. high.	1 white light front showing numbers 1 in. high.	Not exempt.	Built-up sections 7½ m.; elsewhere in town or city 12 m.; 15 m. open country; 4 m. bridges, curves, descents and crossings.
N. H.	Secretary of State. Concord.	Registration $3.00, perpetual $1.00 for yearly operator's license annually Chauffeur's $5.00 annually	Front and rear, supplied by State.	2 containing number not less than 1 in. high.	Exempt	8 m. business districts, compactly built sections of cities or towns; elsewhere 20 m.
N. J.	Commissioner of Motor Vehicles, Trenton, or Deputies, of which there are several in the State and two in New York City.	Registration $3.00 for under 30 H.P., $5.00 for 30 H. P. or more. License fee $1, under 30 H.P.; $2 above; good one year from date	Front and rear 15 in. and not more than 36 in. above ground. Must be 4 in. high and ⅛ in. wide, with letters of State same dimensions.	2 white front, showing numbers 1 in. high; 1 red rear.	Not exempt.	1 m. 7 min. curves; 1 m. 4 min. intersections or within 200 ft. of horses or animals upon highway; 1 m. 5 min. built-up portions of city, town or village; elsewhere 1 m. 3 min. Chains prohibited on macadam, unless 2 in. ice or snow.
N. Y.	Secretary of State. Albany	$2.00 owners, chauffeurs, manufacturers. 50c for manufacturer's duplicate. Good for all time. Owners do not need driver's license.	Rear 3 in. high, with initial letters of State not less than 1 in. high.	2 white forward, with number not less than 1 in. high; 1 red rear,	Exempt.	10 m. business and built-up portions; 15 m. where houses average less than 100 ft. apart; 20 m. country; 4 m. curves, bridges and steep descents
OHIO (Old Law.	No State provision. Local authorities should be consulted.	No State provision.	No State provision.	1 or more white, front; 1 red, rear.	Exempt so far as State is concerned,	8 m. business and closely built up portions of municipality; 15 m. other portions; 20 m. elsewhere.
OHIO. (New Law) Not yet in operation because declared unconstitutional.	Secretary of State. Columbus	Owner's registration, $5.00 under 30 H.P.; $3.00 each additional 10 H.P. Owner's license, $5.00 30 H.P. or less; $3.00 each additional 10 H.P. Chauffeurs, $2.00.	Rear, white on black ground, 4 in. high and ½ in. wide, with letters "OH." 4 in. high	2 white front, showing numbers 1 in. high and ½ in. wide; 1 red rear.	Exempt	10 m. built-up portions of city, elsewhere in city 15 m.; elsewhere 20 m.; approaching bridges, dams, sharp curves or descents 4 m
ONTARIO. Canada	Provincial Secretary Ottawa.	$4.00 for first year, $2.00 for each renewal. Good calendar year	Front and rear; plates free.	1 front with number 2 in. high; 1 rear illuminating number. Search lights not allowed.	Not exempt.	Cities, towns and villages 10 m.; outside 15 m.
PENNA.	State Highway Department. Harrisburg.	$3.00 for driver's license, yearly renewal Jan. 1. Registration of car unnecessary, out driver's license must be affixed.	5 in. high, front and rear. Tags supplied free; remove all other tags.	At least 1 white front and 1 red rear, showing number	Not exempt, except from municipal license in Philadelpia 48 hours.	10 m. cities and boroughs; elsewhere 20 m.
QUEBEC. Canada.	Comptroller Provincial Revenue Quebec, or Agents	$5.00 registration. Owners and chauffeurs' license $5.00. Expires April 1st each year.	4 in. high, 1 in. wide, front and rear, with "Quebec" same size underneath.	2 white forward, showing number 1 in. high. 1 red rear. Searchlights not allowed.	Non-resident Canadians exempt; others must register	Towns and municipalities governed by Municipal Code, 9 m.; 15 m. elsewhere; 4 m. sharp curves, bridges, steep descents, intersections and crossings.
R. I.	Secretary of State. Providence.	$2.00 owners; $10.00 manufacturers and dealers.	3 in. high rear	Such as Secretary of State approves.	Exempt.	No State provision, but local authorities should be consulted
VERMONT	Secretary of State, Montpelier.	20 H.P. or less, $3.00. More than 20 H.P., $5.00. $2.00 operating license both perpetual). Chauffeurs $2.00 annually.	Front and rear supplied by State.	2 white front showing nos.; 1 red rear illuminating nos.	Exempt if registered in a home State granting reciprocity	10 m. cities, villages; 25 m. outside.
*VIRGINIA. (New Law.)	Secretary of State. Richmond.	$2.00. Postage on plate 15 cents.	Rear; supplied by State	At least 1 white forward, and 1 red rear, illuminating number.	Not exempt.	6 m. curves, intersections; 10 m. built-up portions of cities, villages or where there is a gathering of persons or horses; elsewhere 15 m.
WEST VIRGINIA.	State Auditor, Charleston.	$10.00. Good May 1 to April 30.	Front and rear; supplied by State.	No provision.	Not exempt.	No State provision. See local authorities.

*VIRGINIA: The new law of Virginia is only applicable in those counties adopting the act Most of the counties have adopted the law

The State of New Jersey has just adopted a number of changes in its automobile law which will go into effect June 1, 1908. (For details see page 544.)

THE AUTOMOBILE

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WHEREIN SPEED WILL BE A MINOR FACTOR.

It is a more or less general consensus of opinion that those who look for speed in the coming Briarcliff race will be greatly disappointed. Then, why the race? ask many, for what is a race without speed? This, in brief, may be put down as representing the views of a large number whose chief desire is to see speed, and then more of it, and who look back upon a race merely as a milestone that marks some new achievement in record-making. Racing naturally involves competition, and the maximum speed that the competitors can get out of their machines, otherwise it would not conform to the name. But the mere fact that the maximum speed made does not form a close approach to existing records, or better them, is certainly no reason for prejudging the event as one of little value, as the speed enthusiasts have done.

Practical autoists, on the other hand, regard the event as one that will prove the ability of a car to stand the most gruelling test to which an automobile could possibly be put. The marvel will not be that the cars will be unable to break existing speed marks, but that it will be possible to drive them at anything more than an ordinary rate of travel over such a corkscrew course. It is, in fact, a test of their "rough-ability," and the honors will doubtless go to those that can stand the pounding and can still keep going, rather than those capable of high speed under favorable conditions. And the driver will be a factor fully as important as the car itself. Viewed in this light, the Briarcliff race should prove of value, as it is an already well-established fact that the auto can go much faster than it is safe to drive it.

* * *

WHY NOT AN AUTOMOBILE MUSEUM?

Progress in automobile building has been so astoundingly rapid that the machine of a decade ago compares with its present-day successors much the same as the first locomotive of Stephenson does with those of the present. The progress that it required almost a century to compass in the latter field of endeavor has been condensed into less than ten years in the case of the automobile, so that it would seem fitting that steps be taken without further delay, to preserve the prototypes of the power-driven road vehicle in the manner accorded the locomotives of bygone generations.

In other words, is it not time that an automobile museum were established to afford an honored resting place for those early American representatives of the automobile with which inventors struggled to make the modern vehicle possible? Things move so fast nowadays that, within a few years, it is doubtful if many of these first cars will still be in existence. They are antiques only as gauged by the measure of progress that separates them from the automobile of to-day, so that they are not hallowed by the three-score years or more of service that caused old locomotives to be treasured, but judging from the viewpoint of advance alone, they are equally venerable and should not be allowed to find their way to the junk-heap unhonored. The National Museum houses most of the early American locomotives and it already has an automobile exhibit or two. It seems fitting that it should have an automobile section wherein may be gathered to rest all that remains of pioneer attempts in this field on this side of the Atlantic.

* * *

A SIDE LIGHT ON THE NEW YORK-PARIS RUN.

It is quite apparent from the contribution of our Paris correspondent last week, that the French manufacturers' plans in supporting the round-the-world race have sadly miscarried. It was confidently expected that the triumphal passage of several French cars across the United States would be exactly the thing that was required to demonstrate the overwhelming superiority of the foreign product, thus bringing before the population of a country that has bought more French automobiles than any other outside of England the fact that they were still immeasurably better than anything that could be turned out here, regardless of the great advances made in recent years. Government reports have it that French exports of automobiles to this country have been on the decline during the past few years, just as they are to other countries, but the United States constitutes a market not to be relinquished without a struggle, so that doubtless this most daring feat, engineered by two newspapers for publicity purposes, did present a much-sought opportunity. But alas for the triumphal progress! Gone forever, and with it one of the greatest opportunities for the French maker to shout *Vive la France!* There is still Siberia. Bah! says monsieur, disgustedly. Mongols and Tartars do not buy cars, French or American. Who cares what happens to the cars there? Wait for the Grand Prix. We will show them.

CHICAGOANS WILL TRY A NEW FORM OF HILL-CLIMB

CHICAGO, April 13.—Chicago is so accustomed to setting the pace in the way of framing up original motor competitions that the townspeople are not at all surprised by the originality shown in the program arranged for the third annual hill-climb at Algonquin, Ill., drafted by the Chicago Motor Club, which were announced this week. In the first place, Chicago is the only promoting city in the country to hold a double climb, one from a standing start in the morning and the other from a flying start in the afternoon, two hills being used but both figuring in the final reckoning. It was the first to adopt the handicap formula which has proven so successful and all the way through it has shown originality far above the ordinary.

The fundamental principles of the previous climbs are retained in the rules just announced, but the technical committee, which is responsible for the conditions, has broadened the scheme until now it looks to be as near ideal as it is possible to arrange climbs. The handicap formula will be retained, and there will be four classes in this division, classified according to piston displacement. Then there are four other events which are free-for-alls, in which straight time will be the deciding factor, this part of the program being arranged to meet the demand of some of the dealers who assert the public cannot understand the handicap formula. Then there is a segregation of motor buggies which are put in a class by themselves, while the amateur driver will be given a chance to show his ability in two events, one a handicap and the other a free-for-all. The club has adopted the A. A. A. definition of an amateur, and will see that no wolf in sheep's clothing creeps in. Another feature of the card is a team competition. This will not be separate, however, the three cars of one make with the best percentage showing being declared the winner.

The handicap formula which will decide the winners in those events consists of multiplying the cylinder capacity of the motor by the time in seconds, this result being divided by the weight of the car with driver, the winner being the one with the lowest percentage. The date selected is May 15, and Algonquin will again be the battleground, it being the intention to use Perry hill in the morning for the standing start effort and Phillips hill in the afternoon for the flying start trials. The entry fee is set at $30 in all but the amateur events, for which $20 is charged, but the club will rebate half the fee in case of starting. This is to prevent "four-flushing," and has worked well in previous events promoted by the club.

It has been decided that touring cars must carry four adults of an average weight of 132 pounds, while the roadsters, which carry two, will be penalized 264 pounds in the handicap formula to make up for the deficiency. The full card is as follows:

Division 1.—Buggies and Roadsters.

Class A—Open to motor buggies with wheels 36 inches or over and fitted with solid tires.
Class B—Touring cars or roadsters of piston area under 50 square inches.
Class C—Touring cars or roadsters of piston area over 50 and under 65 square inches.
Class D—Touring cars or roadsters of piston area over 65 and under 90 square inches.
Class E—Touring cars of roadsters of piston area over 90 square inches.

Division 2.—Free-for-all.

Class F—Stripped chassis, roadster, baby tonneau or racing cars of piston area 90 inches or over.
Class G—Touring cars, five or seven passenger, of piston area 90 square inches or over.
Class H—Two, three or four-passenger roadsters, stripped chassis or racing cars of piston area under 90 square inches.
Class I—Five and seven-passenger touring cars of piston area under 90 square inches.

Division 3.—Amateur Events.

Class J—Western amateur handicap championship fof four or six-cylinder cars, the winner to be determined by club formula.
Class K—Amateur free-for-all, touring cars or roadsters of any power.

Division 4.—Team Competition.

Class L—For teams of three cars of the same make having the best average performance by club formula.

N. A. A. M. VOTES TO ACCEPT THOMPSON CUP

PROMPT action was taken by the executive committee of the National Association of Automobile Manufacturers at its meeting last week—April 8—upon the report of S. D. Waldon, one of its delegates to the meeting of the A. A. A. central conference committee the previous day, on the matter of trade support to the American Automobile Association in its promotion of national contests of various kinds.

The members present voted unanimously in favor of accepting Jefferson deMont Thompson's offer of a $3,000 cup for a permanent stock car race trophy by way of a prize for an annual international contest. The N. A. A. M. board also confirmed the pledges of its delegates to back up the A. A. A. in its withholding and granting of sanctions and to support exclusively as national competitions the three great annual promotions of the national organization—the annual reliability touring contest, the Vanderbilt Cup race, and the proposed annual event for stock car chassis.

It is practically assured that the American Motor Car Manufacturers' Association at its next meeting of the committee of management will take similar action in conforming the pledges of its delegates to the central conference committee meeting.

At the N. A. A. M. an appropriation of $500 was made toward entertaining the delegates to the good roads and good laws convention at Buffalo, which is to precede the start of the annual reliability tour on July 9.

SEALED BONNET TEST FOR HOOSIERS.

INDIANAPOLIS, IND., April 14.—The first sealed bonnet endurance contest the city has ever had will be held under the asupices of the Indianapolis Automobile Trade Association on May 20. The three events will be arranged according to the horsepower and possibly for runabouts and touring cars. The course will be a triangular one, about 150 miles long. It is likely that the rules, which are to be arranged next week, will provide that cars shall run a certain number of hours each day, thus avoiding night running. There will be no great attempt at speed.

The routes will likely be arranged to include several good sized cities and towns so that the dealers and manufacturers entering cars can get full benefit of all the advertising possible.

PHILADELPHIA'S USE OF A DUST-LAYER.

PHILADELPHIA, April 13.—After a long series of experiments extending back to last summer, the Fairmount Park Commission has directed Superintendent Vogdes to begin the regular use of terracolio over all the principal driveways in the park. This liquid, which is a composition of asphaltum oil and water, will be sprinkled liberally over the roads once every week or ten days throughout the summer. Superintendent Vogdes declares, as a result of his experiments, that the terracolio treatment will not only save the city money, but will add much to the comfort of those who use the drives, whether horsemen or automibilists. The estimated cost to the city is a half cent for every square yard sprinkled.

WHAT MAY BE CONTAINED IN NEW MASSACHUSETTS LAW

BOSTON, April 13.—Automobilists from other States will have to toe the line when driving in Massachusetts if the bill which has been reported by the committee on roads and bridges passes the legislature. Under the law as it now stands, automobilists registered in other States are permitted to drive in Massachusetts for seven days without registering here. If they commit any offense against the automobile law during that time there is no penalty in the way of revocation or suspension of registration or license. As a matter of fact, many cars registered elsewhere have been driven in Massachusetts all summer, possibly going out of the State at intervals in seeming compliance with the law. Some of these visiting machines have been held up for overspeeding and other offenses, and their drivers have been fined. But, after paying the fine, they could continue to drive, whereas a Massachusetts driver in similar circumstances might lose his license and perhaps the registration certificate of his car.

The new bill proposes to correct this matter by adding to the clause permitting the operation of outside automobiles for seven days without a Massachusetts registration, the sentence: "But if any such non-resident be convicted of violating any provision of the laws of this commonwealth relating to automobiles and motor cycles and to the operation thereof, by any court or trial justice, whether or not he appeals, he shall thereafter be subject to and required to comply with all the provisions of this act relating to the registration of motor vehicles and the licensing of operators thereof." In other words, if the driver of a visiting automobile is convicted of overspeeding in a lower court, he must forthwith register his car in Massachusetts and secure a license to drive, thus putting himself and his car directly under the control of the Massachusetts Highway commission, the same as resident drivers and owners.

The new bill also contains a number of other provisions, among them being the granting to the Highway commission of the right to summons witnesses and administer oaths, and putting on the commission the duty of investigating all fatal accidents by means of a corps of inspectors provided for the purpose, these inspectors to be paid by a special appropriation of $3,000 and from fees received by the commission. The bill also gives the commission discretionary power to suspend the license of any person whom it may consider incompetent and improper to operate, and it further qualifies the law so as to prevent a person whose license has been suspended or revoked from continuing to drive by carrying his chauffeur in the tonneau. Failure to display the registration plate assigned a vehicle is made an offense punishable by fine or imprisonment.

Under the advice of the Attorney General's office the committee has changed the section of the bill which provided a fine or imprisonment and loss of license for going away "without stopping and making himself known after causing any accident to any person, or any serious accident to any property, unless he can prove a justifiable excuse." This clause now reads, "or who without a reasonable excuse therefor goes away without stopping and making himself known after causing injury to any person or property." The bill also provides for the immediate suspension of the license of a person convicted of reckless driving, operating while under the influence of intoxicating liquor, or running away after an accident, and this suspension is to take place whether or not the person appeals.

The commission is given power to issue certificates and licenses to members of the foreign diplomatic corps without charge, to collect a fee of two dollars for examination of applicants for licenses, and to charge fees of fifty cents each for duplicates of registration certificates or licenses.

The committee has reported "no legislation necessary" on the Governor's recommendation for a tax on automobiles, graded according to horsepower. This is not the end of the matter, however, for it is generally understood that there will be an attempt on the floor of the house to substitute a bill for the unfavorable report of the committee.

NEW JERSEY'S NEW LAW WILL TAKE EFFECT JUNE 1

TRENTON, N. J., April 13.—Unusual preparations are being made to carry into effect the provisions of the new automobile law which becomes operative June 1 next. State Commissioner Smith now has 10 paid inspectors, and 20 unpaid inspectors on his staff, to instruct local authorities and investigate complaints. What interests the autoist most in the new law is the increased rate of assessment it reveals. Cars of less than 10 horsepower must henceforth pay $3 annually, $5 for machines of from 10 to 20 horsepower inclusive and $10 for cars of 30 horsepower and above, while drivers' licenses have also been increased from $1 and $2, to $2 and $4, according to the horsepower of the car handled, the dividing line being at the 30 horsepower mark.

Makers' annual registration certificates will be at the rate of $5 each, and will be limited to five cars, for which $25 must be paid. These licenses are to be transferable. To accommodate the cab companies, blanket licenses permitting them to drive their vehicles 15 miles within the borders of the State will be issued at a cost of $100 per annum. Henceforth identification marks will be furnished by the State and all registrations will expire on December 31. Each number tag will also have stamped upon it the manufacturers' serial number, to prevent counterfeiting and running a car without renewing its license. Motorcycles will also be compelled to carry identification marks. Among the other changes in the new law as compared with the old, is a provision making it a misdemeanor to throw glass or other cutting substances on the roadway, also one empowering the road commission to expend not more than $1,000 annually for the erection of warning signs. The money collected is to be expended for road improvements.

INDIANA IS TROUBLED WITH DOUBLE REGISTRATION

INDIANAPOLIS, April 14.—City Comptroller Breunig has decided that automobile owners need not pay the annual city license of $3 until the county and State coutrs have passed on the validity of the license ordinance. There was practically no other step the comptroller could take, in view of the fact that owners have refused to pay their 1908 license fees until a case now pending in the Circuit Court is decided. Should the Circuit Court decide against the owners, the case will be carried to the Supreme Court, and by the time that court reaches a decision 1908 will probably be past history. About 900 automobile owners in Indianapolis and several hundred in cities where license fees are charged will be affected. It is believed that the State law, providing a State registration, forbids municipal ordinances conflicting with it.

AUTO CLUBS FEEL THE IMPULSE OF SPRING

CONNECTICUT'S BIG CLUB HELPS SIGN POSTING.

HARTFORD, CONN., April 13.—The fifth annual meeting of the Automobile Club of Hartford was held at the Rathskeller of the Hotel Heublein Wednesday evening and the following officers were unanimously re-elected for the ensuing year: President, W. F. Fuller; vice-president, C. H. Gillette; secretary, G. K. Dustin; treasurer, C. D. Alton, Jr. President Fuller in the annual message outlined the growth of the club during the past year, which showed that 150 members had been gained, the membership now being 200. Five new members were elected, and State Highway Commissioner James H. MacDonald was elected to honorary membership of the club. The matter of permanent quarters came up for discussion and was turned over to the entertainment and house committee, consisting of N. F. Allen, chairman; T. Welles Goodridge, R. D. Britton, W. L. Wakefield, and Albert M. Kohn. Clarence E. Whitney was elected chairman of the membership committee, N. F. Allen of the entertainment and house committee, H. P. Maxim of the contest committee, Colonel George Pope of the rights and privileges committee, C. H. Veeder of good roads committee, and C. D. Rice of signpost committee.

The State highway commissioner has been instructed that he will be accorded the hearty co-operation of the club in the work which he has undertaken, and the sign post committee will see to it that proper warning of dangerous spots is placed along the highway.

It was voted to hold the annual orphans' day run on June 5, the same date that other clubs in the American Automobile Association hold the event. Before a great while the club will doubtless be housed in its own quarters. The rapid growth of the organization renders this move essential. Interest runs high in the forthcoming endurance run, the initial attempt of the club, and every indication points to its complete success. The weekly club lunches at the Heublein have proven very successful and have stimulated interest in the organization. The members have been prevailed upon to obey the present law to the letter, as thereby only will the retention of this measure be possible. The present law, which was brought about mainly through the work of the local club, is everywhere regarded as one of the best in the country.

CLEVELAND CLUB BUILDING MODEL ROAD.

CLEVELAND, April 13.—Earnest effort continues to characterize the administration of the Cleveland Automobile Club. Thanks largely to the active recruiting work of its secretary, C. J. Forbes, Jr., the membership has grown so rapidly that the club has aspirations toward pushing Buffalo for banner membership honors in another year.

The club has started work on the new model road just east of Cleveland. A three-mile stretch of road is being built, the entire work being undertaken by the automobile club. It is hoped that when completed it will serve as an object lesson to the State. The club officers have put more hard work and worry on this proposition than any work yet undertaken.

ANOTHER ENDURANCE RUN AT HARRISBURG.

HARRISBURG, PA., April 14.—The Motor Club of Harrisburg has scheduled May 4 and 5 for its second annual endurance run. Five loving cups will be offered as prizes. One of them, which has been donated by Vance C. McCormick, president of the club, is for private owners driving their own cars. The classification will be: class A, for touring cars costing $2,500 and over; class B, for touring cars costing less than $2,250; class C, for runabouts costing $2,000 and over; and class D, for runabouts costing less than $2,000. There will be six checking stations on the first and three on the second day. At the conclusion of the run the cars will be put through a rigid examination.

NEW LEADER FOR NEW JERSEY'S BIG CLUB.

NEWARK, N. J., April 13.—Announcement has just been made of the regular ticket nominated by the board of trustees of the New Jersey Automobile and Motor Club, to be voted upon at the annual meeting on May 4. The list of nominees will be formed to embrace some noteworthy changes in the official list. Angus Sinclair, a veteran automobilist, has determined to give up the cares of the presidential office. In his place the trustees have suggested that Paul Heller be placed. Another loss that the club will feel most keenly will come through the retirement of H. A. Bonnell from the secretaryship, for a rest demanded by his recent illness. Mr. Bonnell for the same reason will be compelled to relinquish the secretarial chair of the Associated Automobile Clubs of New Jersey. He has been a hustling, tireless, efficient and popular incumbent, and has consented to serve on the club's board of trustees. A. B. Le Massena, who is the local agent for the State Department of Motor Vehicles, has been nominated to succeed him. This will practically mean the moving of the local agency to the clubhouse.

W. Clive Crosby is the nominee for vice-president. Dr. James R. English has been named to succeed J. C. Coleman as treasurer. The trustees proposed are H. A. Bonnell, W. C. Shanley, Dr. F. B. Meeker, A. S. Scherer, and F. A. Croselmire. Messrs. Bonnell and Scherer and Dr. Meeker are new members and Mr. Shanley is named for re-election. Joseph H. Wood and W. F. Kimber hold over.

Although no definite announcement has yet been made, the chances favor the club's holding a 12-hour endurance run on Decoration Day, open only to members. The matter of a possible co-operation of the trade will be referred by Secretary W. H. Ellis, of the local trade association, to his organization. It is believed that the dealers will find more time to support an endurance run planned for later in the season.

L. I. A. C. FITTING UP A COUNTRY HOME.

BROOKLYN, N. Y., April 13.—Much interest has been aroused among autoists generally in Greater New York by the Long Island Automobile Club's perfected plans to open a country clubhouse at Bay Shore, L. I. In this new country home they see advantages of which many would like to avail themselves. Accordingly the Long Island Automobile Club is looking for quite an influx of applications for membership from the members of the fraternity, not only across the big bridges but in the various towns of the island, to which the clubhouse would prove a convenient and attractive rendezvous. The board of governors are pushing preparations for the opening of the new home with vigor. The estate, which is locally known as "Bridgewaters," is a 39-mile ride from the club's city house in Brooklyn. The house is back about 300 feet from the Merrick road. It is 3,900 feet from Great South Bay, where an excellent beach, suited for bathing, is located. The grounds are large and laid out with shrubbery and shade trees. There are spacious piazzas on three sides of the structure. The house is to be conducted as a pleasant rendezvous for members and their families. A competent manager will be in charge, the table will be of the best, and a limited number of sleeping rooms will enable members who so elect to make the country house their living quarters.

JOINT CLUB AT SAGINAW AND BAY CITY.

SAGINAW, MICH., April 6.—Saginaw and Bay City automobilists are planning the formation of an automobile club, for the purpose of promoting good roads in Saginaw, Bay City and surrounding counties, to give endurance and excursion runs, and to protect automobile interests. A meeting will be held this week to perfect the organization. If the club proves to be a success it is the intention eventually to build a fine clubhouse between here

and Bay City, near the Saginaw river. There are about 500 machines in use in Saginaw, Bay City and the nearby towns. It is the intention to have the club formed before the Detroit reliability run takes place.

DETROIT'S CLUB TO LOOK AFTER ROADS.

DETROIT, MICH., April 13.—If highways in the vicinity of Detroit are not kept in shape it will be through no fault of the Automobile Club of Detroit. Franchises on all the toll roads leading out from the city recently expired, and it is now up to private enterprise to make any improvements that are necessary. Realizing this, the club at its annual meeting raised the dues $5 annually, the money thus secured to be used for good roads. Under the energetic direction of Edwin S. George, chairman of the good roads committee, a fine gravel road has within the last two years been built from Circle City to Pine Lake. Farmers who assisted in the work, although at first indifferent, now find they were benefited no less than motorists and are in hearty accord with the work. It is hoped to arouse interest on the part of residents along highways where toll roads are now no more, that good roads may become general.

The past year was the most successful from every standpoint in its history. Sixty new members were added, making a total of 252. The finances of the organization are in excellent shape, and it was decided to spend several thousand dollars enlarging the clubhouse at Pine Lake, so as to better care for the increasing membership. Officers elected for the ensuing year are: President, Harry Skillman; first vice-president, Arthur Pack, Pontiac; second vice-president, Christian H. Hecker; third vice-president, Walter Brooks; secretary, Frank H. Whelden; treasurer, J. T. Anketell; directors for three years, Dr. E. A. Christian, Pontiac; J. T. Anketell, Harry Skillman.

AGAIN COUGHLIN MAY HEAD WORCESTER CLUB.

WORCESTER, MASS., April 13.—Stillman L. Shaffer has been appointed active secretary of the Worcester Automobile Club. The club has engaged Arthur G. Dodge as secretary for the Dead Horse hill climb committee, which event will take place June 6.

The board of governors has named these officers to be voted for at the annual meeting, May 5: President, John P. Coughlin; vice-president, C. A. Harrington; secretary, George E. Stimpson; treasurer, H. P. Bagley; two members of board of governors, F. P. Gay and Alfred Thomas.

FORT SMITH, ARK., ORGANIZES A CLUB.

FORT SMITH, ARK., April 13.—Thanks to the efforts of Fred A. Rentzel, there was organized last Monday night the Automobile Club of Fort Smith. It started with 30 charter members and elected the following officers: President, John Vaile, Sr.; vice-president, George H. Lyman; secretary and treasurer, Fred A. Rentzel. The above, with Frank Handlin and C. E. Speers, will make up the board of governors. It will join the Little Rock club in organizing a State association with A. A. A. affiliations.

ARKANSAS VALLEY CLUB'S NEW OFFICERS.

PUEBLO, COL., April 10.—At its annual meeting last Saturday the Arkansas Valley Automobile Club elected the following officers for the ensuing year: President, Lee Graham; secretary and treasurer, Homer E. Brayton. These with the following were chosen as trustees: George E. King, Dr. Crum Epler, and L. G. Walker. The club will begin an active campaign for the betterment of the roads leading into Pueblo.

100-MILE RUN "TO SHOW MISSOURIANS."

KANSAS CITY, MO., April 11.—The Automobile Club of Kansas City, at its regular monthly meeting on Thursday night, decided to hold a 100-mile endurance run to St. Joseph as soon as the proper details can be arranged. The treasurer reported a balance in the bank of $1,787.47. The membership is now 180.

WINTON OWNER WON CAPE MAY CUP.

PHILADELPHIA, April 13.—"Winton No. 10," owned and driven by F. M. Johnson, annexed first prize, the handsome Hotel Cape May cup, in last Saturday's "roadability" run of the Quaker City Motor Club. Johnson drove his car over the 92-mile course at a rate of speed which brought him to the finish but a fraction of a minute shy of the 5 hours 54 minutes 18 seconds which the contest committee had agreed upon as the official legal speed limit time. Of course, none of the 29 contestants knew the limit agreed upon by the committee, and the majority of them were very circumspect, adhering very closely to the 10-mile-an-hour limit in towns and villages and opening up to the 20-mile limit in the country.

Dr. E. M. Lengle, driving his own Matheson, captured second place, arriving at the finish 25 minutes ahead of time. Another Winton, driven by A. E. Maltby, was awarded third place, having anticipated the official time by 26 minutes. Some of the contestants took chances and "beat it," not a few cars arriving at the "Cape" before 4 o'clock—a rate of speed which would render them amenable to the speed laws, if apprehended. Fortunately, the South Jersey *Vidocqs* were all looking the other way on Saturday, and no one reported having had a run in with them. Although heavy rains during the early part of the week had torn out the road badly in some places, the going generally could be characterized as "fair to fine," and that so many of the contestants honestly sidestepped the temptation to "throw 'er wide open" argues well for Quaker self-control.

Arriving at the "Cape," the automobilists found the town agog, the occasion being the official opening of the big new Hotel Cape May, a modern inn, with accommodations for a thousand guests and costing upwards of a million dollars. The awarding of the prizes to the winners was made the occasion for the exchange of felicitations by all hands over the bright prospects for Cape May's rehabilitations.

FOR THE PRINCE HENRY TOUR.

BERLIN, April 10.—The committee of the Imperial Automobile Club for the Prince Henry Tour points out the fact to intending competitors that every car must be fitted with a speedometer in such a position that official observer can always control the speed rate the car is traveling at. The new itinerary for the event, which has been greatly altered, runs as follows:

Berlin-Stettin	298.5 kilos
Stettin-Kiel	398.8 "
Kiel-Hamburg	368.3 "
Hamburg-Hanover	287.9 "
Hanover-Cologne	328.9 "
Cologne-Trier	250.3 "
Trier-Frankfort	230.5 "
Total	2,163.2 kilos

The hill climb will take place at Bacharach in the Rhine district and the speed trials at Itzelioe.

Competitors must also note that a reduction has been made in the weight of the cars, which now must weigh 800 kilos and not 860, as in the first set of conditions. This does not include spare tires, inner tubes, petrol, water and oil, but in order to facilitate the weighing-in cars may appear at the scales with oil, water and petrol, the weight of which will be docked against every car as 60 kilos and the minimum total weight must be at least 860 kilograms, with engines of a total piston surface of 227 square centimeters. The weighing-in takes place at Charlottenburg, June 7 and 8, and with two exceptions the vehicles start daily at 6 A.M. On June 12 they are let off at 5 A.M. and on the final day at 7 A.M.

ANOTHER CLUB ORGANIZED IN IOWA.

OLWEIN, IA., April 13.—The Olwein Automobile Club has been organized. It starts with a membership of 25, and with J. F. Cole as president and W. J. Brennan, secretary. Other officers will be chosen when the following committee on constitution and by-laws makes its report: Leo Kerwin, T. E. Kint, J. W. Ridler, W. H. Bloom, and R. C. Baker.

THINGS NEW IN THE INDUSTRY AT DETROIT

By BERNE NADALL.

DETROIT, MICH., April 13.—THE AUTOMOBILE and *Motor Age* being desirous of ferreting out all the newest things on the tapis for the season, as well as the novelties in the way of tried and proved principles in which the makers are more particularly interested, I made it a point to call early at the Aerocar Company plant, as I had learned this concern intended to market a new model at a popular price. I found considerable activity in the various departments, and learned that C. A. Benjamin was in Los Angeles, pushing the Aerocar line on the coast. This year the Aerocar people will bring forth an entirely new model of slightly smaller type at a price that should be an attractive one to both the agent and the moderate-priced customer. This newcomer will be known as Model E, and will be water-cooled. The design of the car is nifty, and the body construction is of a triple combination type, being transformable into a two-seated, baggage-carrying runabout, or a three-seated runabout, or a four double-bucket-seated tourabout. In the illustration of this neat appearing combination car it will be noticed the general design shows a good balance, which is not always the case with constructions of this kind. It also will be seen by noting the illustration of the single rear seat that the various changes are made quickly, and without leaving that unfinished look such as often is found in detachable rear seats. This little car is fitted with a Continental engine, and the chassis contains long springs, racy fenders, and full equipment.

The policy of the Aerocar Company to supply either air or water-cooled engines as in former models will still be adhered to. These models also have been drawn down to finer lines, and the various refinements which the Aerocar people have put into them make them more attractive than heretofore. As this concern also is of the opinion that the time is ripe for a cheaper car it has sprung a surprise on the motoring world by listing these 4 by 4-inch air and water-cooled models at a considerable reduction, considering the class of articles made. Those who have wanted a good touring car of medium power at a medium price are certainly benefited by this tendency to market a smaller and lower priced car. If this is a criterion of the values to be offered the small town agent will be very much benefited.

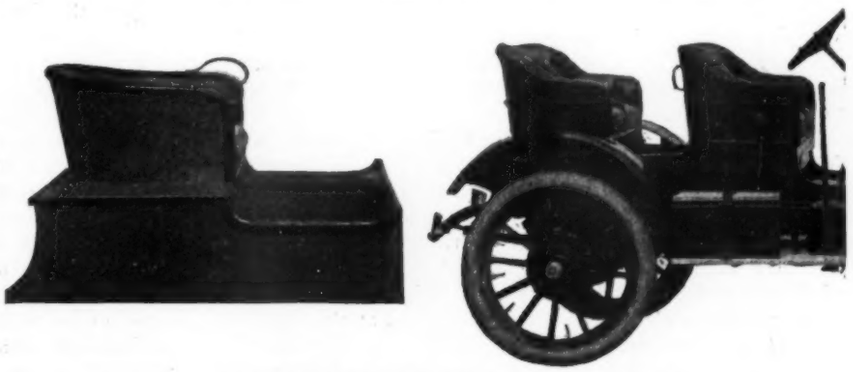
A larger 40-horsepower model is also going through the factory. This model, designed by Mr. Melanowski, late of the Dragon and other firms, appears to be of good workmanship, and has ample power, but Advertising Manager Campbell declares the season for large cars will be an off one, and the company therefore would not now place this model on the market. As he termed it, the motor industry has its off seasons like other branches of the commercial world, which, he said, is a repetition of nature—as the apple tree does not bear good and sound fruit each season.

The 1908 Thomas-Detroit Has Many Refinements.

Of the several new products which are finding a good market few are more appealing than the 1908 Thomas-Detroit. This car, with its numerous refinements, is very much like a French production. The design closely follows the lines of the best continental practice in every detail, even to the position of the front axle, which is thrown out almost in line with the radiator. The executive staff of this concern is made up of young men, from Mr. Chapin, who has only recently returned from the western coast, where he claimed to have found good picking, down to the front door guardian seems to be well suited to meet the various requirements. Also the congenial works manager, Mr. Brady, was found at his desk filling in the morning orders for Thomas-Detroits in green ink.

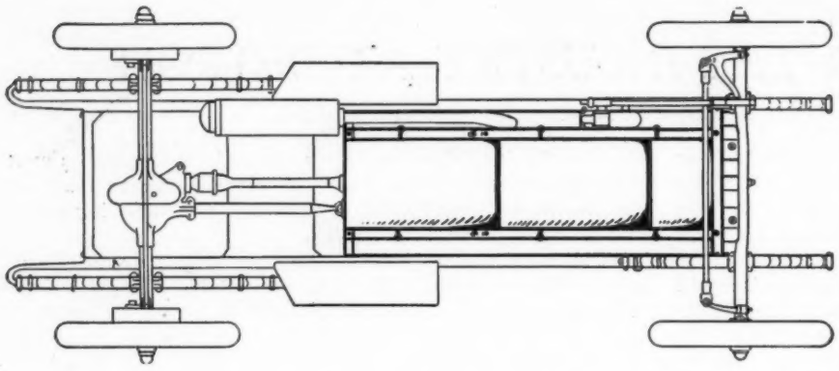
When asked what particular feature of the car was his greatest delight, Mr. Brady replied, "the car itself." To judge it as a whole was his wish, and the remark became more forcible as more of the factory was visited. I found the car had no frills and was what one might call a common-sense engineer's job—a well balanced proposition, such as the very best representatives of the modern American automobile of the very highest type have come to be within the past three or four years. A construction eminently fitted to withstand unlimited hard usage.

One of the points that appealed as worthy of mention, however, is the oiling system of the engine. The system is not new, but the Thomas-Detroit people have made it quite successful by the application of a well-designed pump and sight feed. The pump is integral with the engine and is of the gear-driven type. It is placed on the bottom piece of the crankcase, and pumps from a duct in the bottom of same up through the dash sight feed, thence by outside leads to the three main bearings of the crankshaft. This is following the best European practice, as it gives a constant crankcase level as well as a splash feed; but the sight gauge seemed a decided improvement in that it forms a sort of visible tell-tale at all times of any obstruction in the flow of oil. As shown in an illustration, the complete system, with the leads to and from the pump and crankcase through the gauge, is compact. In another illustration the gauge itself is shown, with the pump pipe ending in a goose-neck shape in the glass gauge. It will be obvious to one that as the pump lifts the oil up to and through the gauge any debris that may perchance find its way into the leads will cause the sight gauge to fill up beyond the neck of the pipe as the pressure from the pump always is there; and unless free and continuous flow of oil is obtained the gauge must fill, which at once tells the driver something is wrong and needs attention. Usually there is nothing but a thin pipe with a glass tube inserted in it, or a drip arrangement which is, as a rule, so oily one cannot detect such discrepancies at a glance. In filling the case with oil the method of determining the quantity put in is by two pet-taps at different heights in the crankcase. If oil runs out of the highest tap the case is full. The Thomas-Detroit people claim 500 miles can be run on one filling.



New Aerocar, Model E, with Triple Combination Body.

As in all parts of the Thomas-Detroit, the gears are put through a rigid test to secure perfect working in every car sent out. Road tests of cars, even 200 or 300 miles, will not always secure the loosening up of stiff gear parts. While the engine generally is worked out, in many cases the gears or the gear



Detachable Mud Apron or Underpan of Thomas-Detroit

levers will still show newness, or stiff action. The Thomas-Detroit gear test is equal in every respect to the engine test or I might say sufficient for the demand. The gear set is of the Brown-Lipe pattern. I should term this pattern of gear-shifting the flip type.

Another point which deserves mentioning is the fine underpan, which is fitted. An underpan does not seem to be of much importance and often is considered a great nuisance. It is always clumsy, ugly and hard to take down. In the case of the Thomas-Detroit pan, the design has been studied with the same care that characterizes the running parts; in fact, I found this condition to prevail in numerous parts which are considered of minor importance by some of the makers. Detaching or attaching of the pan can be effected without the use of tools within two or three minutes.

In the first place the design is part of the design of the car frame itself, the sub-frame having grooves to take the swaged edge of the pan, which is slid into place from a point under the gearbox forward to the front of the car, making a dust-proof fit. In addition to the grooves supporting the pan, six spring clips or hooks are sprung into holes made for the purpose. The whole pan, which is semi-cylindrical, is 24 inches across, thereby taking up very little room under the car, and at the same time being almost unnoticeable.

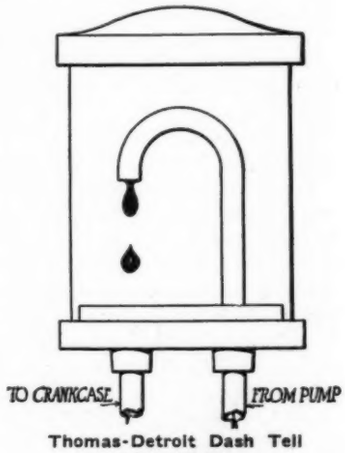
The spring suspension is ample. It is a noticeable fact that this part of the American motor car has shown such improvement within the last two years that to-day it can claim to be the leader in this respect. The exemplification of this fact never was made plainer than when the foreigners recently commenced to traverse this continent in the New York-to-Paris tour. I also can include the frames, and other parts of the chassis of American-built cars, which no longer are a trouble, notwithstanding the almost impossible road conditions. A glance at the illustration, which also gives a view of the underpan, shows the long wide springs fitted to the Thomas-Detroit cars.

Numerous other interesting data could be given of this new proposition, but as I am dealing only with special matters space limits me. However, it is worthy of note to point out advantages shown in the use of large ball-bearings, and solid plain crankshaft bearings which usually are not considered good practice; but in the case of this firm, good design and careful assembling have been found to give every satisfaction. Also the good balance of the car enables the engine to produce a horsepower for every 60 pounds it carries in dead weight. Considering that this firm is hardly two years old, and that it has turned out something more than 600 cars, which are giving satisfaction in every part of the country, the achievement stands out as a credit to the industry.

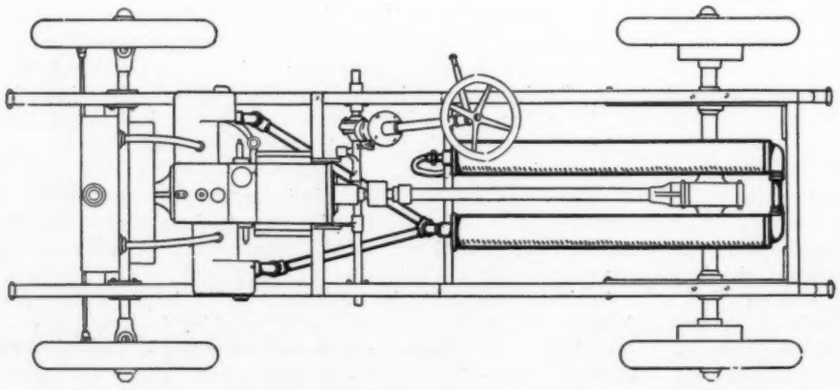
There is nothing that succeeds like success and when it is applied to actual experience it becomes the concrete fact. No prejudice can assail the product of an institution that has become successful no matter what opposite view one might make of it. It is often said that the double opposed or the one-lunger is a freak or a frost or some such expletive as ruthlessly slaughtering in its purport; but the proposition remains defensible as long as the promoters can show a return for their investment.

The Silent Northern.

Since the day the Silent Northern received its appropriate name it has steadily gained in favor. Northern cars, those of the double-opposed, two-cylinder type, are better to-day even than ever before. They are made in a first-class shop and made well. There are not many cars of medium price that can boast of so well equipped a shop and such a good organization as have the Northern. The main office is located in Detroit, but an equally large factory at Port Huron is under the same control. A visit through the Detroit works was sufficient to learn that this place is a solid institution and that it is a fine plant. To acquaint the reader with practices such as might interest the engineer as well as the layman buyer, it is not amiss to point out one or two advantages such as have been obtained by the above mentioned conditions. In the first place, it is plain that manager, foreman and mechanic are wholly in touch with each other. This unity of officers and men means that any leak that might otherwise occur will be detected almost at once and made right before it is too late. Also any cheaper or better way to perform a difficult piece of work would just as readily be discovered. A case in mind is one where sand-blown cylinders are transformed into first-class bright castings, by galvanization. These castings, like most castings of such a nature, were too often of the pinhole variety, or sandy, and sometimes porous—which condition was not always discovered until the casting had been machined, fitted in a car and sold. I am told that as high as 45 per cent. of the castings received was sometimes rejected, much to the annoyance of the foundry and the recipient, and that it is imperative to do something to overcome the trouble.

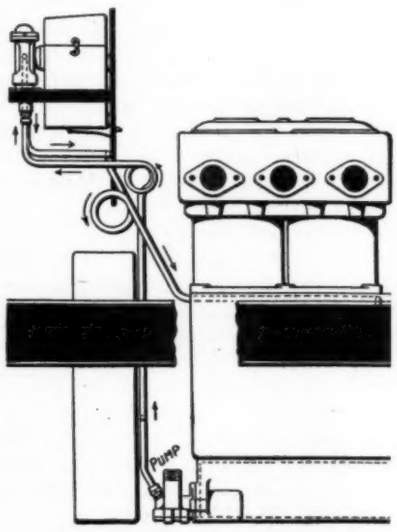


Thomas-Detroit Dash Tell Tale Lubricator.



Double Muffler as Applied to the Silent Northern.

While I did not learn whose idea it was to galvanize the cylinders, I found them to be clean and clear and of a close and smooth texture. The cleanliness alone seemed to compensate for the extra cost incurred galvanizing them, which is stated to be about $1.25 each. The rejected castings at the present time do not equal two per cent. and the fact that the interior of the cylinders also is coated makes them somewhat proof from quick carbonization, the surface being more of a repelling nature than one of adhesion, which is obvious from the very nature of the rough interior of an ordinary casting, the pebbly surface holding dirt much firmer, especially gas burnt oil products. Also it is noticeable in machining that the interior of the cylinder is of such a reflected brightness that the work became much easier on account of being quite visible. Thus it is explained that a vital benefit is obtained by the unity of an establishment.

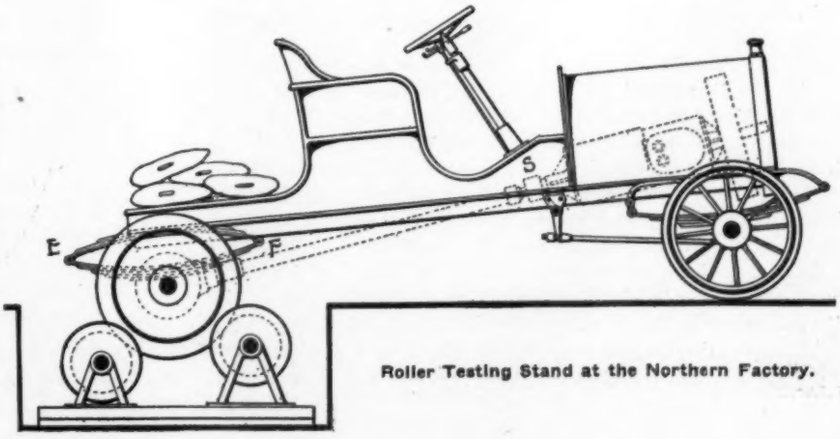


Thomas-Detroit Oiling System

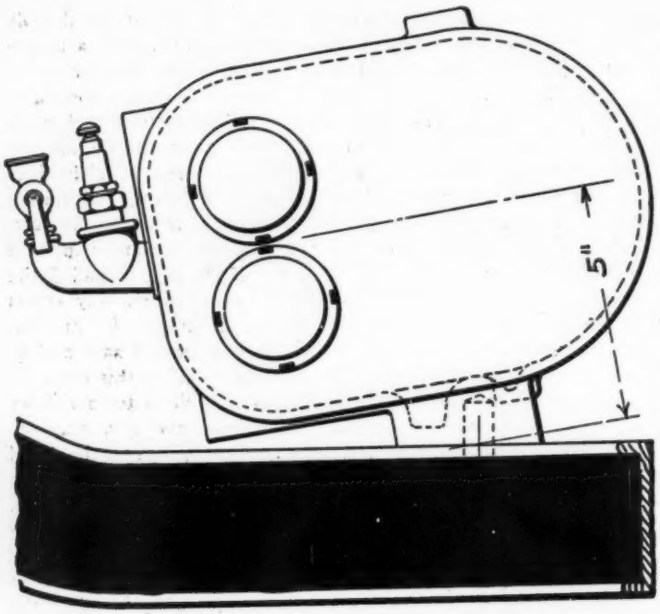
Other novel things on the car are the exhausting of the engine gases, the spring and shackle suspension, the plug position, and the absence of torsion or stay rods, also the interesting manner in which the finished cars are tested with regard to hill-climbing ability. Taking the plug position first, it will be seen in illustration how the plug is pocketed in a remote corner of the cylinder. I am told the position given the plugs in Northern double-opposed engines is one which was adopted after much experimenting on the subject. While it seems wholly contrary to all laws regarding spark plug theory this firm advises that its plug trouble since placing it as shown has quite vanished. The sooting, carbonizing and oil-wetting troubles so frequent in the four-cylinder upright engines are thus eliminated by what most people term very bad practice, or, in fact, a practice I never before saw, except, I believe, some years ago when the Mercedes firm tried it for a while. This is such an interesting subject a whole book could be written on it, and I would very much like to hear from other sources on experiences gained by others, as much data could be collected that would be of general benefit to the trade. In drawing attention to the general suspension of the car one illustration, which shows the car on the roller-testing stand, gives a profile of the runabout where it is plainly seen that no torsion rods or stay supports of any kind are used. This is another instance where everyday practice has been thrown to the winds, but, from what I learn, good results accrue. Heretofore the one or two other firms I have known which have tried the torsionless chassis have eventually given way to popular sentiment—or perhaps for other reasons—and fitted such members, but this firm refrains from believing that it is necessary in the car in question, and it states it has been experimenting on such lines for a number of years. It has even followed, or perhaps originated, certain spiral spring principles which have been incorporated into the drive shaft—only to be thrown out again as no good, after long experience.

This spring idea, which once I saw in France, was at one time heralded as the solution of the flexible drive *trés bon,* but it soon went the way of other such arrangements, yet the difficult problem as instituted into this car seems to work out well. The firm states it has yet to have a complaint from that source. The Northern people believe in it and claim their numerous cars now running in all parts of the country bear them out. I have made it a point to try the principle since leaving the works and find in the action a lifting and falling of the full elliptic rear springs which are fitted to the car. While it may appear from the fact that the remark implies a defect in the spring and falling of the spring ends E and F the reverse is the case. This rising and falling in no way seems unsound no more than the deflection of a spring. In starting, which I had demonstrated by using the high gear, I saw a clear swiveling action, apparently thoroughly practical in this case, receiving the sudden application of the power to the outer periphery of the driving wheels through the springs, giving a partially retarded movement to the car. The jerk, so prone to the usual direct drive, is quite absent and it seemed quite unlikely much trouble could occur from the adoption of such a principle here. Suddenness of action does not take place and therefore any carelessness that might seemingly cause a snap somewher appears very remote. Only one universal joint is used at the front end. The engine also is set slantwise, declining towards the rear, making the drive more direct. At the universal joint a sleeve is fitted, which practically is unlimited in its movement either forward or backward, as much as 1 1-2 inches being apparent under the most sudden conditions. As one must judge by ocular demonstration, as seeing is believing, it cannot be said the practice of the Northern is wrong. The isolated position of the spark plug, the torsionless drive and the galvanized cylinders should be enough at one time to talk about, but in the case of the Northern it apparently thinks from both ends, as it were, like the burning of the candle; however, it does not believe in hiding its light under a bushel as it makes it a point to bring all prospective buyers into the works to see with their own eyes.

The company also works from both ends, as Mr. Gunderson, the manager, puts it, in that it commences to assemble its chassis by fitting the monster mufflers first. As it seems correct to do it, it again is another unorthodox proceeding which is in no wise a derogatory or assailable practice. The manner adopted of exhausting the engine gases is novel in the practice of carrying it out only. It is exactly what others are slowly coming to, namely, expansion room spread over large areas and a minimum of baffling. Look at the large four-cylinder cars of good make to-day and you will see a 50 per cent. increase in the size of the exhaust pipes, expansion chambers or mufflers over what existed only a few years ago. Everybody knows that if they could hold the exhaust gases long enough to cool to a temperature equal to that of the outside atmosphere, when deposited into the open air there would be no sound at all. This is just what is happening everywhere now. The Oldsmobile was one of the first to give plenty of expanding area in America and that car has become known as one of good muffling. The manner of passing away the hot gases on the Northern is illustrated, the



Roller Testing Stand at the Northern Factory.



Northern Motor Spark Plug Scheme, Showing Isolation.

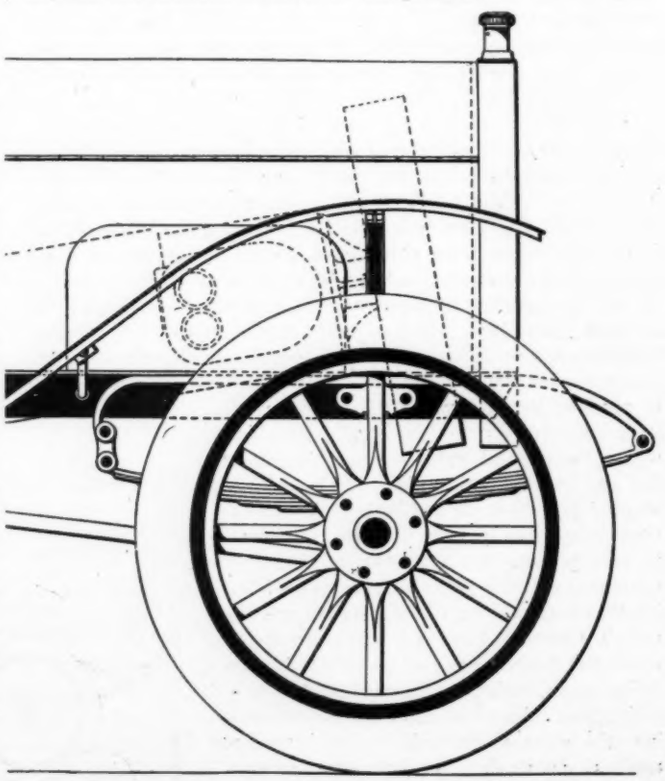
drums being what is termed the high pressure and the low pressure boxes respectively. The left box only has a perforated pipe running through its extreme length which retards the passage of the fresh hot gases enough to reduce their expansion properties to a point low enough to cause them to be quite weak, after which they are passed into the second right chamber and allowed to flow out upon the air, quite cooled and weak. It is claimed the two-cylinder horizontal engine is much harder to make quiet than the vertical engine; however, the Northern motor seems to have earned its sobriquet honestly and simply. It will be obvious to anyone that back pressure almost is reduced to nil.

Detroit is known for its motor car originality, and I have found it quite true; but it should also imply that its originality is mostly sound as I have found any variation from the regular paths to be based wholly on good engineering practice. Sometimes art or style will predominate over science, but not so marked here. Take, for instance, the French custom of hanging the spring shackles, which is followed the world over. It may be right to design that little shackle to hang obliquely always. It looks as if it need not be so, but the whole world seems to have followed the French. And perhaps the French only copied it from the landau of German origin or the caléche which we Americans can see by taking a little trip to the town of Quebec in Canada where they are the favorite horsedrawn vehicle to-day. One illustration shows the style the Northern has adopted. The company points out the reason for such a change and the feasibility of it seems apparent. It is a fact that an obliquely hung shackle will only allow of a spring rebound equal to the tension in the spring. A quick drop into a hole and a further sudden fall of a motor car running at good speed will be sufficient to show what happens to the body, or a car when the shackles are oblique. The hinge movement of the shackle on the return of a spring is not the same as that on its downward throw, and it is apparent the shock absorber has its existence mainly from this cause. Hang the little shackles vertical—or nearly so, sufficient to act as desired—and the return of the spring will be confined to the power of its tension or deflected state. It must return through the shackle on dead center, as it were, and not through the shackle as a hinge. That is the reason the Northern has so set its shackles. If this argument can be assailed I fail to see how, as the function of the shackle primarily is to allow for the varying lengths of the spring under the varying stresses. In the shop I find good engineering practices of the modern school and the equipment is first class. The gears are cut right in the factory and one of the latest Gleason arc machines is turning them out at a good rate of speed. Jigs are used throughout the shop and no fewer than twenty-four separate parts are being ground for model C, a remarkable instance of good shop practice when the price of the car is considered. Organization and practical mechanics alone can account for such results.

Particularly interesting is the manner in which this firm tests its cars for hill-climbing. I specially asked Mr. Gunderson for a sketch of the rollers on which his tests are given. The idea as applied here is novel, particularly the means of altering the stiffness of the grade. The rollers are such as are used in other places to run out the engines, but in this instance the Northern people have so arranged the rollers that simply altering the spindle distances, which allows the car driving wheels to drop lower or rise higher as the case may be, changes the resistance given to the power plant. It is plain that such a principle theoretically figured out would give such results as could only be obtained by actually driving the car up inclines, the only difference presumably being the taking away of the traction of the front wheels. This, however, is no doubt partly compensated for by the small resistance that must necessarily occur at the point of the driving wheels where they are in contact with the rear roller. It must be remembered that the drivers must touch on two points and the weight is as great on the rear roller as on the forward one. It strikes me that this idea is one that while crude to begin with will work out to a greater degree of satisfaction than any other of which I know.

APPLE ELECTRIC COMPANY IS ORGANIZED.

Dayton, O., April 13.—H. V. Apple O. D. Apple, and V. G. Apple have withdrawn from the Dayton Electrical Mfg. Co., and have gone into business on their own account as the Apple Electric Company. The new company has already placed on the market its improved storage battery, and will shortly announce its new dynamo-floating storage battery ignition system, which will embody a number of up-to-date improvements. V. G. Apple still retains his interest in the Dayton Electrical Mfg. Co., and will continue to serve as vice-president.



Vertical Spring Shackle as Shown on the Northern.

AUTO INDUSTRY NEWS FROM HARTFORD MOST PROMISING

HARTFORD, CONN., April 13.—The outlook for the coming season in this city is particularly bright, and both the local factories report business as good. The Electric Vehicle Company's plant is running with a force of about 250 men, and all the 29-horsepower cars that can be built are being sold as soon as ready. The Boston agent wanted 50 cars for immediate delivery, and made good his request by a certified check for the amount of purchase, but delivery in the desired time could not be made. The Pope Manufacturing Company is shipping quite a batch of the Hartford models, and on one day last week 14 were sent over the rails to buyers. The Hartford Rubber Works Company is running overtime. This is another tangible indication that business has improved. This plant has been operated on a short time schedule more or less all winter.

The retail dealers have had a very satisfactory time of it since the Hartford show last January. The Capitol City Auto Company will market the Mitchell this season, and thus far have made many sales. A. W. Peard has taken on the Overland runabout, heretofore unknown in this city. The Connecticut Steel & Wire Co. have taken on the Stoddard-Dayton, in addition to the Reo, both new ones to Hartford. The Elmer Automobile Company continues another season with the Ford runabout, the Britton Brothers sell the Maxwell, while the Palace Automobile Station will market the Thomas, Autocar, and Oldsmobile. Every one of these dealers has had a lively season and things look unusually bright. The same holds true of Brown, Thomason & Co., agents for the Packard, Stevens-Duryea, and Cadillac. T. Dudley Riggs represents the Isotta Fraschini and Simplex, and regards the outlook as most promising. The Post & Lester Co. have opened a downtown branch on Asylum street in the heart of the business district. Hartford motoring circles are optimistic, and there is no reason to be otherwise.

Despite all denials to the contrary, there is every reason to assume that the Packard Motor Car Company will shortly be in possession of the Electric Vehicle Company plant. It is rumored that the Columbia light gas car will be continued as Packard No. 2, and that a Packard transmission on the rear axle will be substituted. The motors for the commercial vehicles will be built at Detroit and shipped complete for assembly to this city. The least that can be said, is that when the plant goes it will be acquired by the Packard company, and this move is much desired by local interests.

Halsey M. Barrett and Henry W. Nuckols, receivers of the estate of the Electric Vehicle Company in the district of Connecticut, have filed with the superior court the following report of March business. The report shows charges on account and cash sales of $37,457.21, with purchases of $7,740.27.

The cash statement shows balance on hand, March 1, of $30,056.90; collected on Electric Vehicle Company account, $1,138.37; collected on receivers' account, $41,514.16, and on miscellaneous sales, $157, showing a total of $72,711. Disbursements were: Pay roll, $10,997.49; traveling expenses, $240; purchase creditors, $4,152.04; receivers' salaries, $1,800; receivers' bond, $400; refund of advance payment, $1,500; freight and express, $291.46; telephone and telegraph, $163.80; salesmen commissions, $188.18; petty cash, $181.12; operators, $2; total, $19,894.09; balance on hand, April 1, $52,816.91. This shows a good increase in the cash on hand over the month of March.

INDIANA FARMERS ARE BUYING AUTOS AND BUILDING ROADS

INDIANAPOLIS, IND., April 13.—Although the season has not far advanced, practically every county in Indiana is arranging to build several miles of roads during this Spring and Summer. In fact, the amount of road building will doubtless exceed that of last year, and the year 1907 was a record-breaker.

As a result of last year's and this year's road building activities, Indiana will have one of the finest networks of improved roads in the country. Practically all road improvement is being done under the recent State law, providing that on the application of fifty property holders in a county an improved road not more than three miles long and connecting two other improved roads, shall be built.

Inquiries have been directed to a large number of counties on the subject of road building, and it is evident that road building in Indiana in 1908 will aggregate fully $8,000,000, all of which must be borne by the property holders by assessment.

In Hamilton County, of which Noblesville is the county seat, bids are now being asked for the construction of thirty-six roads, to cost about $150,000, and aggregating sixty-four miles. Blackford County is preparing to build thirteen new roads; Bartholomew, three miles; Dearborn County, two and a half miles; Hendricks County, two and a half miles; Knox County, three miles; Jackson County, about twelve miles; Clinton County, twenty miles; Daviess County, ten miles; Lawrence County, eight and one-half miles.

It is interesting to note that in almost every instance the farmers are back of the good roads project, lending their best efforts and spending their money. The fact that farmers want rural routes, and are rapidly adopting the automobile, are the principal reasons for the great amount of road building.

PITTSBURG SHOW RESULTED IN SALES.

PITTSBURG, April 13.—With the starting of the Pittsburg-Philadelphia race between the Reo and Maxwell cars, the second automobile show at Duquesne Garden, Pittsburg, practically closed Saturday afternoon. More than 1,000 automobilists were gathered to see the start.

More than $250,000 worth of automobiles were sold at the Pittsburg show. The Banker Brothers Company alone sold cars to the value of $87,000. Of the 16 machines they disposed of, 13 were Pierce Great Arrows and 3 Stevens-Duryeas. The Moon people held a special show at the Hotel Schenley all the week and reported large sales. Nine Maxwell cars were sold during the week. Other agencies announced sales of from one to four cars. The sales of accessories were away ahead of the total last year. Manufacturers placed some good agencies.

BOSTON'S 1909 SHOW TO BE IN MARCH.

BOSTON, April 11.—The first meeting of the directors of the Boston Automobile Dealers' Association since the Boston show was held a few days ago, and after Manager Chester I. Campbell's accounts had been examined, it was decided to declare a first dividend from the show profits. The earnings of the show were very satisfactory, though somewhat less than last year.

It was decided to hold the 1909 show at the corresponding time, that is during the second week in March. The directors have had under consideration several propositions for changing the scene of the show, but they decided to continue in Mechanics building, and voted to take a lease of that building for the next automobile show. The management of the show will be decided at the annual meeting in June, when the election of officers will be held, and possibly new members admitted.

TRACY MAKES INTERESTING FUEL TESTS.

The fact that gasoline of the proper quality for automobile use has been constantly getting scarcer for several years past, has led numerous experimenters, both here and abroad, to try the virtues of alcohol and a number of other promising substitutes for gasoline. One of these that has come to the front is benzol, and Joseph Tracy, who has made a close study of the fuel situation for some time past, made some interesting experiments with this fuel last week, in connection with the dynamometer of the Automobile Club of America. A Simplex runabout handled by Frank Lescault, of the Palmer & Singer Company's forces, was mounted on the rollers of the dynamometer and first run on gasoline for a considerable length of time, and later on benzol. The car was geared high and special attention was paid to the results shown by the grademeter.

No carbureter adjustments were required on changing fuels, the results showing them to be perfectly interchangeable. The use of benzol showed a slightly increased power output and greater drawbar pull. With this fuel the power developed was sufficient to climb a grade of 12.1 per cent., which was increased to 12.2 per cent. by making a special carbureter adjustment, the drawbar pull being 398 pounds, while the maximum with gasoline was 383 pounds, representing an equivalent grade of 11.9 per cent. Mr. Tracy carried on his experiments throughout the week, culminating in the power tests on the club dynamometer, and he said that as a result of these tests and the close investigation that has been made of the subject abroad, he felt convinced that much of the doubt in the fuel situation was solved and that autoists need not fear anything from the rising price of gasoline for the next few years, at least. Benzol is a by-product of the manufacture of coal, and is water-white in color. For use on the automobile, little or no change in carbureter adjustment is necessary, as benzol vaporizes as readily as gasoline. Mr. Tracy will continue to prosecute his investigation, verifying the various findings.

OLD AUTOCAR RECALLS ANCIENT HISTORY.

A car in the ancient and honorable division of last week's big parade in New York that attracted no little notice was an Autocar of 1901 model. It recalled some early history of the industry and a road feat of the long ago as well, particularly pertinent to a celebration of the wooden anniversary of the automobile. Designed by Louis S. Clarke, the present consulting engineer of the Autocar Company, the car was the first shaft-driven automobile built in this country, either experimentally or commercially, and at a time when there were but three other manufacturers in the United States. The widespread acceptance of the shaft drive theory added to the interest in this parade exhibit. This car established the first automobile road record between Philadelphia and New York, Mr. Clarke driving it from Madison Square Garden in 6 hours 10 minutes. This was in January, 1902, with the roads badly cut up and abounding in frozen ruts. A fresh battery and new tires was all that had been done for this early model to groom it for its appearance in the carnival parade.

The Autocar Company, it will be remembered, was formed and incorporated in Pittsburg in the summer of 1897, it being the outgrowth of the original ideas of Messrs. Clarke, who were firm in their deep conviciton that the automobile's utility would be acknowledged by the public the moment it could be demonstrated. At that time, it must not be forgotten, the large rubber companies of to-day had not been formed. Solid tires were the vogue and pneumatic tires were but slightly removed from garden hose. Even more discouraging than the absence of suitable tires was the impossibility of securing a spark coil. None was understood and none was manufactured, so Mr. Clarke had to develop one of his own for the purpose. After three years in Pittsburg, the Autocar factory was moved to Ardmore to secure the benefits of the Eastern markets both as to sales and supplies and to take advantage of the unexampled good roads in the section for a thorough testing of the cars.

PEOPLE WHOSE SAY-SO IS WORTH WHILE.

General John T. Cutting, Oldsmobile Co., of New York: "The prime object of the carnival parade was to give visible evidence to the people of the progress that has been made in the first decade of the automobile industry in this country. This object was skilfully carried out, and the almost total absence of breakdowns, even on the part of the old models, convincingly demonstrated, even to the most skeptical, that the era of practical perfection had been reached. I think nearly half a million persons lined the route of the triumphal march, attracted by nothing more than an industrial display, proving beyond the shadow of a doubt that we are only at the threshold as yet. What percentage of the huge throng will eventually drive their own pleasure machines or install automobiles in their commercial delivery departments it would be folly to guess, but it will undoubtedly be a large one. Every man in the business who rode through that vast assemblage which packed New York's finest thoroughfares was deeply impressed by the interest of the public."

Benjamin Briscoe, Chairman American Motor Car Manufacturers' Association (discussing the proposed railway show): "Such an elaborate affair as is under advisement by the A. M. C. M. A. would prove to be a great boon to the industry. The event as planned by the association would give the participants an excellent field of new buyers. It would take the cars to the very homes of the buyers, thus saving the public time and money as would necessarily be spent in attending a New York show. It would reach people who would not and could not attend the show. It is for this class of people that the event would be conducted, and I thoroughly believe it would be a paying proposition based from a strictly business standpoint. It would kindle motoring interests and arouse new enthusiasm in those who at the present time have no idea of purchasing an automobile."

Hugh Chalmers, President E. R. Thomas Detroit Co.: "Heretofore automobiles have been bought. Now they must be sold. Reliability in the car and organization in the company, are the two essentials in the future for automobile manufacturers. The country must be so districted and the selling force so organized that dealers or agents can call upon the prospective buyers quickly and frequently. These dealers or agents must be taught the superior features of the cars they sell. And their agencies or branches must be organized to give efficient service to users at reasonable prices. The automobile business has got to a point where it is going to be a case of the survival of the fittest. And the fittest will be those manufacturers who not only make the best cars, but also build up the best selling organization."

Morris Grabowsky, Grabowsky Motor Vehicle Company, Pontiac, Mich.: "What builders of commercial vehicles want most is better roads. Heavy motor trucks must have good footing or else they cannot do what is expected of them nor what they are equal of accomplishing. The first requisite in all cases is road conditions favorable to the operation of the commercial vehicle. When the various Legislatures will make adequate appropriations for road improvements then the transportation proposition solves itself."

AUTO PARADE TO BE PART OF SUBWAY DAY.

JAMAICA, L. I., N. Y., April 13.—Jamaica, L. I., is to make an automobile parade a part of its celebration of the opening of the subway, June 4, 5 and 6. George Morris, chairman, J. P. Disbrow, John Leonardi, George K. Cooke and Charles C. Crossman are the committee in charge. It is proposed to hold the parade at night, to choose a king and queen, and to have a decorative division. A "rose section," in which the paraders will be solely women, their cars being decorated with roses, is to be made a special feature. Hillside avenue, a macadamized boulevard, fully 200 feet wide, running through a handsome residential district, is to be included in the route of the parade, which promises to be the largest ever witnessed in this section of Long Island.

SUCCESSFUL TRY-OUT OF THOMAS DETROIT.

After having completed a unique trip, consisting of a 2,000-mile run in midwinter with all the gears, including the reverse, removed, the Thomas-Detroit "Snowbird," a picture of which is shown herewith, has been placed on exhibition at the Chicago salesrooms of the E. R. Thomas Motor Company. The car has not been touched since it ended its trip, and its driver, C. A. Hills, says it is in fit condition for another 2,000 miles under equally strenuous circumstances. One of the most trying tests to which the car was subjected in the course of its run was the ascent of some of the bad hills for which Cincinnati is noted.

The start was made from Detroit in the thick of a blinding snowstorm, Salesmanager Lee Counselman piloting the car as far as Toledo, where C. A. Hills took charge, ice making steering difficult on the way to Findlay, O. From there to Columbus, O., the going was better; thence, the route lay to Dayton, O., much of this distance being a subaqueous trip, owing to the river having overflowed its banks. Salesmanager Counselman again took the wheel and drove the car to Cincinnati. The next large city on the route was Indianapolis, via Richmond. Then on to South Bend, via Peru, Ind., and from there to Chicago, where the test was officially ended.

The Thomas-Detroit "Snowbird" Living Up to Its Name.

EXPLAINING THE PATRONYM OF THE MOON.

St. Louis, April 13.—Automobilists and the public at large, particularly in the East, very frequently wonder where the Moon car obtained its name, and sometimes think its appellation is a tribute to the lunar system. However, practically everybody in the West is familiar with the record of Joseph W. Moon, president of the company that manufactures the car, and the source of its name as well. Mr. Moon is one of the oldest and most prominent manufacturers in the West, the name having been a household word in the Middle West for several generations, as the family first became famous prior to the Civil War, as manufacturers of the first rifled shoulder gun placed on the market. In earlier days, the possessor of a Moon gun was an object of envy by his fellow sportsmen, that firearm possessing some individual characteristics that were distinctive and desirable.

In after years Moon buggies and carriages became famous and made the name ever better known through the Central West, the growth of this business having had considerable influence on the success of St. Louis as a manufacturing city. Five years ago Mr. Moon embarked in the automobile business in the same thoroughgoing manner that has distinguished him in other lines, and extended his name to his latest product—hence, the Moon automobile, which was not long in making its title as well known as the other products for which its manufacturer has stood sponsor for many years past.

Houdini Enmeshed with Chains Ready for His Test.

HOUDINI GIVES WEED CHAINS A TUSSLE.

Harry Houdini, the "Handcuff King," went up against the Weed Chain Tire Grip Company's product at a New York vaudeville show last Friday night. Representatives of the company enmeshed the slippery gentleman in a flesh-cutting network of chains, embracing subsidiary loops, added a couple of chains, bound automobile wheels to the combination, and fastened the whole with padlocks, after laying Houdini on his back. The "Handcuff King" had a long struggle of it, but finally emerged from his cabinet, freed of his bonds, victorious.

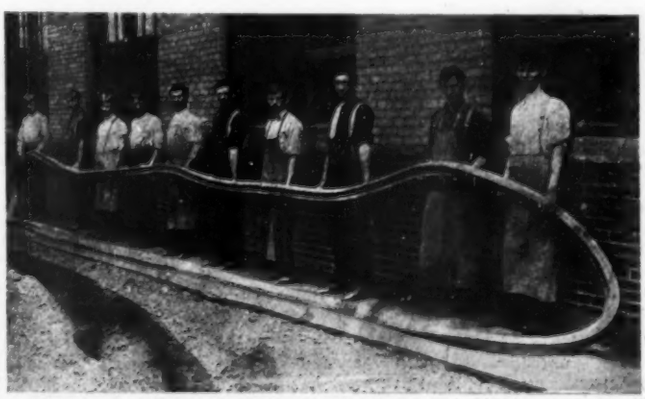
A RIDE FOR ATLANTIC CITY OFFICIALS.

Atlantic City, N. J., April 13.—Members of the Atlantic City Automobile Club have been called upon by its officers to furnish 30 cars to carry the Board of Freeholders and prominent city officials on a day's tour of inspection of the roads, with a view to an intelligent and appreciative appropriation of the funds for highway improvement. The precedent set by the local club is one that might be followed to advantage elsewhere.

INGENUITY OF A TIRE-MAKING PLANT.

Detroit, April 13.—It is a mistake to imagine that the ingenuity of tire manufacturers is confined solely to the production of automobile accessories. In proof of this, the Morgan & Wright plant in this city has just completed one of the most unique jobs of its nature ever undertaken. Eighteen pairs of rubber gaskets for use between the tubes of the Michigan Central tunnel under the Detroit River here have been turned out, their purpose being to make the tunnel water tight.

Each of the gaskets is an endless piece of solid rubber, forming a circle twenty-four feet in diameter, and weighs 425 pounds. One side of the gasket is grooved to receive the end of a tube, the other side being flat to meet a similar ring on the adjoining tube. A gasket is run out in a continuous piece by a tubing machine having steel shaping dies. Then it goes to steel molds with a hydraulic pressure of 2,000 pounds to the square inch. The platens of the molds are hollow, and the gasket is vulcanized and the ends joined as it goes through. Three days are consumed in turning out a single gasket.



They also Make 24-foot Gaskets at Morgan & Wright's.

BRIEF ITEMS AND TRADE MISCELLANY

The Chelsea Clock Company, 16 State street, Boston, Mass., announce that their factory and warehouses were not damaged by the recent conflagration which destroyed so large a part of the city of Chelsea, Mass.

The Bergdoll Motor Car Company, of Philadelphia, officially opened its big new establishment at Broad and Wood streets last week with a banquet to the press and trade. Upwards of 150 guests were present.

Z. E. Danner, formerly of the Commonwealth Power Company, Allegan, Mich., and J. W. Reek, formerly of Hillsdale, Mich., have formed a partnership and opened a general garage, supply and repair business under the name of the Angola Automobile Garage, in the Hendry Block, Angola, Ind.

Jacob W. Mason, one of the best-known and enterprising dealers in New Jersey, formally opened his new garage at 350-352 Halsey street, Newark, on Saturday afternoon and evening, April 11. There was music and refreshments; also a full line of Maxwell and Stoddard-Dayton cars, for which he is the Newark agent.

A company has been incorporated in Los Angeles to operate a taxicab service. The concern will be known as the Taxicab Company, its incorporators being Frank J. Spare, J. A. Murphy, M. G. Yoakum, W. J. Wren, and Donald Barker. Orders have been placed for three cars, and the company expects to have 25 in operation in the next few months.

Mrs. Florence Moore, of Seattle, Wash., sailed for Japan March 31, and in the hold of the steamship was her Winton roadster, in which she will tour Japan for two months, after which she will visit China for a tour of three months. Aside from Mrs. Charles J. Glidden, Mrs. Moore is the first American woman to undertake a journey of this nature.

There will be established at Coney Island for the accommodation of automobilists a commodious garage opposite the new Steeplechase, on the block bounded by Surf and Mermaid avenues, West Sixteenth and West Seventeenth streets, by George C. Tilyou. The garage will be able to accommodate 1,000 cars, and will prabably be the largest of its type in the world.

Max Grabowsky, one of the founders of the Rapid Motor Vehicle Company, has organized the Grabowsky Motor Car Company. The new concern will have its headquarters in Detroit, and will manufacture a new style of motor for commercial and sight-seeing cars. The entire power-plant will be made removable, to that it can be taken from the car without disturbing any other part.

As an evidence that the Wayne Automobile Company of Detroit has an abiding faith in the future of the industry, it may be cited that the last of a series of contracts for new machinery, to the extent of $100,000, were signed last week. The first of these new machines, a mammoth drill press, was received last week, and a number of other special pieces of machinery are being set up. President B. F. Everitt is now on an extensive Western tour, visiting the company's agencies.

The United States Navy Department has purchased two automobile ambulances from the White Company, of Cleveland. One of these is for use at the Naval Hospital at Philadelphia, and the other at the Tuberculosis Hospital at Las Animas, Colo. The new ambulances are similar to those which have been purchased from time to time by the War Department from the White Company. The chassis of the two new ambulances are identical with those of the standard 30-horsepower White touring cars, except that the frame is lengthened out, increasing the wheelbase to 132 inches. The new ambulances have a capacity of four stretchers, besides accommodations for several surgeons, and space for carrying a considerable quantity of medical supplies.

The Mora Motor Car Company, Newark, N. Y., will shortly commence moving into its new plant, but as the whole force is working under considerable pressure at present it will probably be 60 days before the transfer is completed. The first main building, measuring 60 by 406 feet, and which is two stories high of mill construction with full skylight, has been completed, as have also the boiler and testing houses. The ground floor of the large building will be entirely devoted to machine work, each department being supplied with power by an independent motor. The second floor will house the company offices, drafting-rooms, and the painting and upholstering departments. The machine tool equipment of the old plant is only two years old, and is the best obtainable. With the large additional quantity that has been ordered, and some of which is already on the ground, the company will have double its present facilities. The site of the new plant comprises a plot of seven acres, situated on the Northern Central Railroad. The testing house is complete in every detail, doors the entire length of the building permitting cars to be driven in and out freely. Five pits have been installed, and automatic ventilators supply them with fresh air and carry off the gas. Wash racks are provided, and all cars will be cleaned by steam.

How the Jones Decorated.

One of the most artistic yet simple decorations for New York Carnival Week was that of the Jones speedometer, whose New York headquarters are at the corner of Broadway and Seventy-sixth street.

NEW AGENCIES ESTABLISHED.

Bert S. Morley, Abbott and Seventh streets, Detroit, has secured the Michigan sales department of the Ferro Foundry and Machine Company, of Cleveland, and is arranging for additional lines.

The Auburn Motor Car Company has just opened salesrooms at 441 North Broad street, Philadelphia. The new concern will handle the Auburn, and will be under the management of F. Liebfeld, Jr. and H. W. Trump.

John J. Gibson, of the Buffalo Automobile Exchange, has taken the agency of the Pope-Hartford car, and will handle it in connection with the Franklin. The Pope agency was formerly held by the Imperial Motor Company.

The Hamilton-Kull Company, 1677 Broadway, New York, has just taken the agency for the Oakland Motor Car Company's output in the eastern territory. The Oakland company is a branch of the Pontiac Buggy Company, Pontiac, Mich., and has been building popular-priced runabouts and taxicabs for about a year past.

The Grout Automobile Company, of Orange, Mass., has established its agency in Boston with Stade & Farrow, who have opened a store at 94 Massachusetts avenue, for the sole purpose of handling the Grout car. Mr. Farrow is an experienced automobile man and handled the Grout in Cambridge, Mass., last year, and Mr. Stade is a well-known business man of wide experience.

The Dow Portable Electric Company, of Braintree, Mass., announces that hereafter the company's entire product will be sold through the George Q. Hill Company, Boston. There will be no change in the local representation, which will remain as at present, viz: New England States, W. J. Connell, 36 Columbus avenue, Boston; Middle States, The Factory Sales Corporation, 235 Randolph street, Chicago; Pacific Coast, L. H. & B. I. Bill, 132 Valencia street, San Francisco.

RECENT TRADE REMOVALS.

The Tincher Motor Car Company, South Bend, Ind., has removed its Chicago branch from the Chicago Automobile Club building to 1220 Michigan avenue.

The Triumph Gear Company, Incorporated, formerly the Motor Parts Manufacturing Company, Detroit, has removed from Sixth and Congress streets to Seventh and Abbott streets, and will devote its entire factory to the exclusive manufacture of marine reverse gears.

PERSONAL TRADE MENTION.

H. L. Thuma, formerly connected with the Imperial Garage, has been appointed general manager of the Columbus Garage & Machine Company, 35 West Mound street, Columbus, O.

R. D. Willard has resigned from the Harrolds Motor Car Company, metropolitan agents for the Pierce Arrow cars, and has gone with the Harry S. Houpt Company, agents for the Thomas.

Louis P. Mooers has left the Moon Motor Car Company, of St. Louis. He has completed designs for a popular priced car which, it is reported, will be manufactured by a new company soon to be formed.

W. M. Perrett, who until recently looked after the Diamond Rubber Company's interests in Detroit, will take charge of a branch of the Empire Automobile Tire Company, to be established there May 1.

Frank H. Yerger, who has gained considerable fame as a driver of the Studebaker on road and track during the past year, has been appointed manager of the Philadelphia branch of the Studebaker Company.

Edward H. Stickels, who has been connected with the Winton and Aerocar companies in New York City, has become connected with the Carlson Motor & Truck Company, 481-487 Sterling place, Brooklyn, as secretary and general manager.

W. H. Workman, of the Packard Motor Car Company, was scheduled to deliver at the Long Island Automobile Club last night an illustrated lecture, entitled "Through Darkest Cuba," setting forth adventures of the Packardians on their 1908 model try-out trip through the Island last January.

E. C. Morse, general sales manager of the E. R. Thomas Motor Car Company, is spending the week in New York City as the guest of Harry S. Houpt, the New York representative of the company. Mr. Morse expresses himself as well pleased with the present condition of the automobile industry.

George Parker, a prominent driver and salesman, has joined the corps of experts which the Bergdoll Motor Car Company is gathering together to man its new salesrooms, garage and repair shop, at Broad and Wood streets, Philadelphia. Parker will probably act as Mr. Bergdoll's mechanician in the Briarcliff race.

New York Renault Branch.

This new garage, spare parts, and taxicab department of the Renault Frères Selling Branch has just been opened at 214-216 West Sixty-fifth street, New York City.

NEW TRADE PUBLICATIONS.

Matheson Motor Car Company, Wilkes-Barre, Pa.—An unusual amount of attention has been devoted in the Matheson catalogue for 1908 to showing the essential features of the mechanism and describing its salient features in a clear, everyday, matter-of-fact manner, so that the average owner of a Matheson can recognize them at a glance and realize their method of operation and their importance in the economy of the car as a whole. Every important part of the car has received this same painstaking attention, and is attractively illustrated by half-tones so that the design and construction of the car may be studied in detail without trouble. The book is prefaced with a list of the Matheson agents in various parts of the country, followed by an introductory outline of the Matheson and several pages of half-tones showing the complete cars, while at the end a list of the many victories to its credit are given, together with a few letters from satisfied owners, under the significant heading, "One Hundred Per Cent. of Satisfied Customers."

Charles E. Miller, New York City.—This house is now sending out its tenth annual catalogue. It is a book of 216 pages and cover and probably contains more information regarding auto supplies and accessories than anything of the kind ever published. It is such a compendium in fact, that it has come to be known as "Miller's Blue Book of Auto Materials." In this latest catalogue, Mr. Miller lays particular stress upon the fact that the list prices scheduled therein are those given by the manufacturers of the articles, and are standard, and that none of the so-called bargain houses can give large discounts from them. It would be impossible to even give a resumé of the long list of articles catalogued. As the compilers put it, "We either carry it in stock, will get it, or it isn't made," which suffices to tersely sum up the matter where the question of thoroughly covering the ground of automobile supplies and accessories is concerned. Copies will be mailed gratis upon request to all applicants.

Neustadt Automobile and Supply Company, St. Louis.—This firm's mailing representative for 1908 is a book of 188 pages, of large size, bound in yellow covers, with a bright red band across the center, on which the firm's name is printed. Above this is the title, "The Growing House," as, in addition to the headquarters at 3948-3954 Olive street, St. Louis, a branch house has been established at 368 Golden Gate avenue, San Francisco, to take care of the Coast trade. The book itself is replete with a most complete showing of running gears, motors, transmissions, parts and accessories, all of which are of well-known standard makes. In fact, there is everything for the automobile and motorboat that can possibly be imagined and that covers a range of articles much wider than the average autoist has any idea of.

Lozier Motor Company, New York.—Under the title of "Lozier Logic" the publicity department of this concern has decided to issue a house organ which, as its head-line indicates, will be "published with more or less frequency and always on the square." It is an attractively made up booklet in small maganize form and is "in the perpetual interest of the Lozier motor car," after which it is hardly necessary to add that it is filled with Lozier, first, last and all the time, but so interestingly presented that the reader forgets he is reading a periodical catalogue. The frontispiece shows the "Peerless One," W. J. Bryan, in a Lozier, while the remaining twenty pages are generously interspersed with attractive illustrations showing Lozier cars in recent events and competitions.

Haynes Automobile Company, Kokomo, Ind.—It is one thing to compile a catalogue and quite another to make it a piece of interesting reading, though it is evident at a glance that this object has been attained in the case of the new pamphlet just received from the makers of the Haynes cars. The Haynes Company is, by the way, now entering upon the fourteenth year of its manufacturing career, so that the preliminary "argument" which prefaces the story of the 1908 Haynes cars is well worth reading. The booklet deals briefly with each salient feature of the Haynes design and construction, the parts being attractively illustrated. In fact, the whole catalogue is a business-like presentment of the maker's claims for superiority that is well-dressed typographically.

Jackson Automobile Company, Jackson, Mich.—"Jackson motor cars need no introduction to the public," say the makers, "as this is their seventh season." Accordingly they confine themselves to a brief description with a single illustration of each model, the catalogue being prefaced with an attractive frontispiece showing a landscape in colors, a Jackson car at full speed occupying the foreground. Following the brief descriptions of each model for the coming season, which are accompanied by half-tone illustrations and set off by attractive headpieces in colors, there are two pages of views of the mechanism of the cars, three pages of the "Winnings of Jackson Cars," some testimonial letters and a page of illustrations of the various trophies won.

Haschke Storage Battery Company, Chicago.—"Facts—Real, Certain, Undeniable Facts, Concerning the Haschke Storage Battery," is the title of the opening page of a booklet being sent out by these makers of accumulators for light, power and automobile use. The pamphlet is only one of 16 pages and cover, but within its covers, the front one of which bears the significant quotation "fool proof," is condensed a great deal of information about the Haschke storage batteries. Nor is it all boiled down facts, as the text matter is relieved by occasional half-tone illustrations showing the application of the batteries.

Mora Motor Car Company, Newark, N. Y.—In presenting its trade literature to the automobile-buying public for the coming season this concern goes into the whys and wherefores of the "Six vs. Four" problem and shows why it was convinced that the additional cylinders were an advantage, although the Mora four for 1907 was an unusually successful car. The catalogue attractively illustrates and describes each different type turned out, as well as a large number of the essential parts of construction, showing their design.

Goodyear Tire and Rubber Company, Akron, O.—Under the title of the query, "Are You Getting Your Share?" this company is sending out an interesting little sketch written in the vernacular and describing the experience and views of the driver who did not have Goodyear equipment, with those of a second chauffeur who stops to see if any assistance is required by the man who is struggling with a tire that has given up its life for the time being.

American Gasoline Motor Company, Baldwinsville, N. Y.—This firm makes a specialty of supplying castings and machined parts of two-cycle motors to be built by their customers, and is sending out a pamphlet describing the various types and sizes offered, as well as the numerous accessories necessary to build the complete motor and install it in a boat, the motors being of the marine type.

Pope Motor Car Company, Toledo, O.—The distinguishing features of Pope-Toledo automobiles are well presented in the firm's 1908 catalogue just received. Three large illustrations of the Pope-Toledo touring car, limousine and runabout give an excellent idea of the company's lines. The get-up of the catalogue is of the highest class.

Hatfield Motor Vehicle Co., Miamisburg, O.—What can be obtained for an expenditure of a little over half a hundred dollars is attractively put forth in the 1908 Hatfield Buggyabout catalogue. The high-wheeler has its features well backed up in the catalogue and is thoroughly illustrated in detail and as a unit.

The Angier Company, Boston.—Very little that is in any way connected with automobile equipment has been omitted from the 1908 supply catalogue of the Angier Company, Boston. Everything from cotter pins to magnetos is described, illustrated and priced in the New England publication.

Northwestern Storage Battery Co., Milwaukee, Wis.—Storage batteries for automobile use and illuminating purposes receive the major portion of attention in this firm's recently published catalogue. Other lines handled and described are charging outfits, electric lamps and electric searchlights.

Moon Motor Car Company, St. Louis, Mo.—"Simplicity" is taken as the keynote of the Moon automobile, described in the 1908 catalogue. To show how the car excels in this respect numerous illustrations are given of various parts of the engine and transmission.

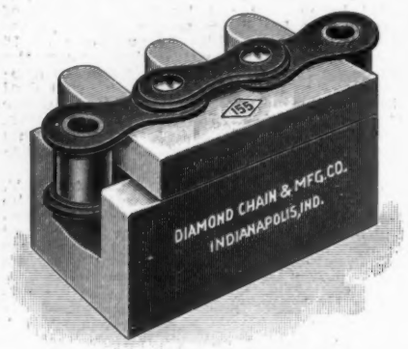
Pope Manufacturing Co., Hartford, Conn.—"Held High in Public Esteem" is how the testimonial handbook of the Pope-Hartford is presented. Usual methods of catalogue compiling have been departed from in this work, with very pleasing effect.

The Bartholomew Co., Peoria, Ill.—"Why I Bought the Glide" is a satisfied customer's account of the reasons which induced him to invest in the machine from Peoria. The story is told in a little booklet printed in colors.

Motor Car Equipment Co., New York.—Two thousand articles are illustrated, described and priced in the 1908 catalogue of the Motor Car Equipment Company, Warren street, New York.

INFORMATION FOR AUTO USERS

Diamond Repair Block.—This has just been placed on the market by the Diamond Chain & Manufacturing Company, Indianapolis, Ind., and it has proved so successful that it promises to make a riveted chain easier to repair than one of the detachable type. It is smaller than any tool ever



THE NEW DIAMOND REPAIR BLOCK.

brought out for the purpose and takes up but a very little space in the tool kit. By placing the chain in the block as shown in the illustration, and giving both rivet heads a light tap with the hammer, the side bar may be lifted and the repair link inserted, making the chain ready for use again in a minute or two, while the whole operation of taking the chain off, repairing it and putting it back again need not take more than ten minutes. If it is desirable to use the old link again, it is only necessary to put the link and side bar back into place and flatten out the two rivet ends with a hammer. It is a speedy means of repair that will be appreciated by owners of chain driven machines.

Time Saver Tire Plug.—This is a novelty recently placed on the market by the Auto Time Saver Repair Kit Company, 178 Devonshire street, Boston, Mass. With its aid it is possible to repair inner tubes permanently without the aid of vulcanizing apparatus, rubber patches, or cement. It consists of the rubber plug shown, which is first inserted in the puncture, and then firmly compressed by means of a pair of pliers as shown in the cut illustrating the operation. This grips the rubber around the hole and closes the puncture permanently. The Time Saver plugs are made of two circular brass discs, joined by a

TIME SAVER PLUG.

TIME SAVER PLIERS IN USE.

solid post 3-16-inch long. The discs are grooved, so that when clamped together, they hold the rubber securely. The solid post does not collapse, but remains intact, furnishing ample support for the pressure of the discs against the rubber so that there is no possibility of the discs becoming separated. The entire plug, being rubber-covered, presents a surface similar to that of the inner tube. The special Time Saver pliers used for the operation, have circular washers attached to the jaws, the lower washer being perfectly flat so that it cannot cut the rubber, while the upper washer is made convex. The Thomas car in the New York-Paris run has been supplied with Time Saver plugs.

Monster Gasoline Gages.—One of the most striking accessory exhibits at the recent Boston show, was that of the Boston Auto Gage Company, which exhibited some monster gasoline gages, 11 feet in length, made especially to the order of a large dyeing and cleansing establishment in Philadelphia. The gage is known as the Triumph, and that its success is already a well-established fact is quite evident from its adoption by no less than eleven different manufacturers of high-grade American cars, on which it will be regularly included as a part of the stock equipment. The "Detachable Second" gage, which is used by the George N. Pierce Company, Buffalo, N. Y., on all the 1908 Pierce Arrow cars, is another one of the products of the Boston Auto Gage Company, and its presence on a car is highly appreciated by an owner or driver.

Universal Tire Protector.—Briefly described, this is an armored sleeve with a positive mechanical anchorage, which is being placed on the market by the Universal

UNIVERSAL TIRE PROTECTOR AND ANCHOR.

Tire Protector Company, Angola, Ind. The inventor of the Universal, having experienced the forms of tire trouble common to all autoists, has endeavored to bring out a combination having a positive mechanical anchorage, that shall be practically instantaneous in application, adjustment and removal, unyielding to the hardest usage, and universal in its application to all makes and sizes of tires, shapes of felloe and rim construction. It has only been after putting it to the most severe practical tests that it has been put on the market. The Universal Tire Protector is made of chrome leather specially selected for this purpose, and is equipped with a reinforced steel armored tread of special construction. Patent steel draft hooks and side plates produce perfect conformity to the shape of the tire. There are no lacings nor buckles, and only one small wrench is necessary to attach or release the fastening which holds the Universal where it is put, the operation requiring but a very short time.

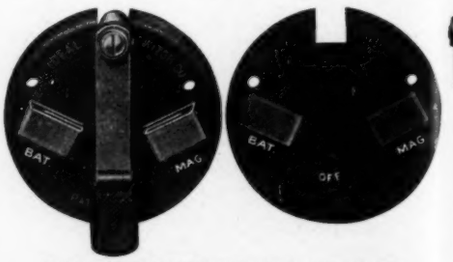
Gre-Solvent.—Ever get your hands grimy? Every man who takes care of his car or motorboat, and what owner does not prefer to do so when he has the opportunity, cannot fail to get a liberal coating of grime and grease on his hands, and it is of the kind that resists all attempts to remove it in the ordinary manner. For several years Gre-solvent, which is "miles ahead of soap," has been the friend of the man whose hands have become soiled through working around machinery. The quality of this cleanser has always been of the best, and this year, the manufacturers—the Utility Company, 332 Broadway, New York—have increased the size of the package, giving a much greater quantity without increasing the price or lowering the quality.

Quick Tire Wrench.—Any autoist who has tried to take off the lugs of a clincher tire in a hurry realizes that the process is one in which quick time cannot be made with the oppliances ordinarily used for the purpose. To make this possible, John Kelly,

THE QUICK TIRE WRENCH.

Congress street and Forty-sixth avenue, Chicago, has brought out what he terms the "Quick Tire Wrench," which is illustrated by the accompanying line cut. It is an ingenious little device designed to be slipped over the lug cap until it engages the square part of the shank of the lug. By having the string wound up left-handed, the lug may be removed by a single pull, while to reseat it, the string is wound in the opposite direction. The maker claims that it is possible to save half the time in tire changing with the aid of the Quick Tire Wrench. It is made in three sizes, 1-2-inch, 5-8-inch and 9-16-inch.

Ideal Automobile Switch.—More batteries and coils have been condemned as the result of a poor switch than the recording angel could possibly take account of. The ordinary types of switches in common use when the automobile came upon the scene were not adapted to its use owing to the vibration and hard service to which they were put. Between constant shaking and the presence of dirt and grease they did not give a satisfactory contact for very long. To overcome these defects the Ideal



IDEAL AUTOMOBILE SWITCH AND PARTS.

Switch Company Inc. Plainville, Conn., brought out the type shown in the accompanying illustration. The blade is removable for safety and when in position gives a positive and clean contact; it cannot jar out of place owing to the construction of the spring contact posts which are self-locking. With the blade in the vertical position as illustrated, the switch is in the off position while turning to the right, or left, gives the magneto or battery connection, as desired.